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LONDON SATURDAY AUGUST 7 1943

SOME PROBLEMS IN THE CONTROL OF INFECTIOUS DISEASES*

BY

ROBERT CRUICKSHANK, M.D., M.R.C.P., D.P.H.

The mortality from infectious diseases has declined steadily and steeply in the past half-century; yet to-day approximately one death in five is attributable, directly or remotely, to infection. The problem of the control of infectious diseases is a complex one, for "it includes all measures which decrease damage, whether physical, economic, social, or psychological, to the human host as a result of disease, and with no marker to indicate where actual preventive medicine leaves off and good clinical medicine begins." To assess the value of past measures and as a guide to further progress the bulk of infectious diseases in this country may be considered in four main groups: (1) *Acute respiratory infections*—the pneumonias, influenza, and the common cold; (2) *Tuberculosis*; (3) *Intestinal infections*; and (4) *Childhood fevers*—pertussis, measles, diphtheria, and scarlet fever, in that order of importance. But if all other streptococcal infections are added to scarlet fever that group becomes one of the principal causes of invalidity.

This list excludes at least two important groups—infections of the central nervous system, and venereal disease. Cerebrospinal meningitis and poliomyelitis have each so complex an epidemiological picture that I have no space to discuss them here, while the control of venereal disease is such a controversial problem just now that I propose to leave it alone.

Acute Respiratory Infections

The Pneumonias.—There has been an irregular but appreciable decline in deaths from pneumonia since the beginning of the century, more so in the adult age groups than in the young and not at all among the aged; yet some 40,000 deaths are still attributable yearly to pneumonia and bronchitis. The introduction of sulphapyridine in 1938 brought high hopes that pneumonia would cease to be one of the captains of the men of death; but, in fact, deaths from this infection during 1939-41 were for England and Wales still 88% of the average figure for the previous four pre-sulphonamide years—1934-7 (Martin, 1942).

It may be assumed that most primary pneumonia in this country is due to infection with the pneumococcus, and pneumococcal pneumonia occurs in two clinical forms—lobar pneumonia, which is an infectious disease of older children and adults, and bronchopneumonia, which is largely an autogenous infection of the very young and the very old. Hospital figures show a reduction in the case fatality of sulphonamide-treated lobar pneumonia to about one-third of pre-sulphonamide days; whereas in all Scotland, where deaths from lobar and other forms of pneumonia are differentiated, mortality from lobar pneumonia in the years 1939-41 was still three-fifths that of the 1934-7 period. These figures suggest that cases are being treated more effectively in hospital than in the home. If that be true—and too often the practitioner gives too small a dose for too short a period—then more hospital pneumonia units might well be established in industrial towns where the infection is prevalent. The factors which affect prognosis in lobar pneumonia, such as age of patient, infecting pneumococcus type, extent of lung involved, and bacteriaemia, are more readily determined in hospital, where appropriate dosage can be more easily arranged.

Such scanty data as exist on the sulphonamide therapy of bronchopneumonia indicate that a considerable reduction in mortality has been effected among hospital cases of primary bronchopneumonia in children; yet the figures from Scotland show that in the sulphonamide years there has been only a 15% reduction in mortality from "other forms of pneumonia," compared with a 40% reduction in lobar pneumonia. The explanation of this remarkable disparity is perhaps to be found in the differences between the two infections. Lobar pneumonia is an exogenous infection of lung tissue by a highly invasive pneumococcus in a healthy child or adult who either lacks some specific antibody or whose resistance is temporarily impaired, as by fatigue or an antecedent cold. The sulphonamides seem to be most effective against actively invasive pathogens, and this factor, together with the ready response of healthy tissues to infection, helps the individual to overcome the invading pneumococcus. Bronchopneumonia is usually an autogenous infection in a poorly resistant individual by pneumococci of low virulence. The infection affects primarily the mucous membrane of the bronchial tree, where the organism is badly placed to stimulate production of antibody and is less accessible to the drug. Moreover, the tissues of the very young and the very old are perhaps less able to kill a pathogen which the sulphonamide can only prepare for destruction. Thus the factor of non-specific resistance probably plays an important part in the successful administration of a chemotherapeutic substance.

The bronchopneumonia of the aged may often be an unavoidable terminal infection, but there is something far wrong with a nation's health which allows bronchopneumonia to kill every year 7,000 to 8,000 children under the age of 5 (see Table). Mortality from pneumonia at this age is four to seven times greater in industrial and working-class districts than in residential areas. Thus poverty is a principal predisposing cause; but which factor in poverty—poor nutrition, poor hygiene, poor environment, or way of life—is most important we do not know. Certainly rehousing does not *per se* improve matters much, and anyone who has read *Our Towns* (1943) will realize how difficult it will be to eradicate slum habits, with their evil influence on the health of young children. The higher infant mortality rates of the Northern industrial areas are largely due to an excess of deaths from respiratory infections, and here the harsher climate is an important contributory factor; yet Huddersfield has shown that these adverse conditions can be overcome. Provision for earlier and more frequent hospital treatment of young children

Table showing Deaths in Children, 0–5 years; England and Wales, 1938

	0–6 mths.	6–12 mths.	1	2	3	4–5	0–5
Pneumonia ..	2,943	1,961	1,581	514	286	167	7,452
Enteritis	2,129	891	275	59	36	24	3,414
Tuberculosis ..	118	258	414	264	196	127	1,377
Measles*	65	327	538	235	136	88	1,389
Pertussis	281	268	323	95	76	29	1,072
Diphtheria	25	48	107	215	296	320	1,011
Scarlet fever ..	2	8	26	46	25	49	156

* 1938 was a measles year.

* A Chadwick Lecture, given on March 16, 1943.

with measles and pertussis in the industrial North would probably help to lessen this appalling mortality from bronchopneumonia.

Influenza.—Many of us are wondering if there is any likelihood of a pandemic of influenza in this Second World War similar to that which happened in 1918. The 1918 pandemic—the first of its kind to coincide with a major war—probably owed its origin to other factors than war-weariness, malnutrition, and the herding together of men; but its spread and its ravages were doubtless facilitated by these abnormal conditions. Any spark, in the shape of men drafted from an epidemic focus to war-stricken Europe, may set the flame alight again. In considering whether anything can be done to forestall or limit a possible pandemic, the following facts are relevant. Influenza is due to a number of viruses, of which two varieties have already been isolated and labelled influenza virus A and B. After a clinical attack, specific antibody, which can be readily detected by a simple test, develops to these viruses; many individuals during an epidemic develop antibody without being clinically affected. Thus by taking blood from representative samples of the population we can tell whether the community possesses a low or a high degree of resistance to the influenza virus. Ordinarily the virus attacks only those individuals with little or no immunity, and it is perhaps disturbing that there has been scarcely any epidemic influenza due to virus A or B in this country since 1937. Vaccines have been prepared from influenza virus A, and in controlled institutional trials they have, when used prophylactically, reduced the incidence of infection by about one-half. But in the presence of a highly virulent strain of pandemic propensities a moderate degree of immunity would probably be insufficient to protect against infection. Burnet and Clark (1942) in their excellent monograph advocate for such a contingency immunization by spraying the upper air-passages with a living but attenuated virus which could be quickly prepared in large amounts in chick-embryo. There is much to do along these lines, and every opportunity and encouragement must be given to laboratory workers to develop some such mode of defence. Until specific prophylaxis becomes practicable, strict quarantine is the only reliable means of protection, and in the event of pandemic influenza on the Continent an attempt to quarantine this island might be worth while; for, if even only partially successful, it might slow down the spread and thereby attenuate the virulence of the virus.

In the presence of a pandemic the wearing of efficient masks by those in close contact with infected cases will afford protection, while bactericidal mists or vapours (sodium hypochlorite, resorcinol, propylene glycol) could be used as aerial disinfectants in public meeting-places. Throat sprays and gargles are useless. With mucous membranes made highly susceptible, secondary infection is the great danger in influenza, so that clinical cases should be isolated early, preferably in their own homes. Herding together of patients, as was done in 1918, courts disaster from secondary bronchopneumonia due to cross-infection with the streptococcus, staphylococcus, etc. If institutional treatment is unavoidable, wards must be kept well ventilated, beds widely spaced, and floors and bed-linen treated with oil (Van den Ende and Thomas, 1941). Best results in 1918 were claimed by those who nursed patients in the open with only a canvas canopy over their heads. There was little secondary pneumonia in the *summer* epidemic wave of 1918.

The Common Cold.—American analyses have shown that each of us has an average of three colds a year. Much invalidity from otitis media (10% in children under 5), sinusitis (6.6% of older patients), bronchitis (one-third of the cases), and pneumonia is directly attributable to the common cold. If colds have a varied aetiology, there is strong supportive evidence for an elusive filterable virus as a causative agent (see Browning, 1942): experimentally only chimpanzees have been successfully infected, and only one team of workers has claimed to have grown this virus outside the body, so that specific prophylaxis is as yet impracticable. Bacterial vaccines will not reduce the incidence but may lessen the risk of secondary infection. There is some evidence that physical well-being and a comfortable environment increase resistance to the cold. Avoidance of contact with infected persons is virtually impossible, but much can be done by education and propaganda to make the unguarded sneeze as much of an antisocial habit as spitting now is. In factories and places of entertainment aerial disinfectants may prove to be most useful in preventing dissemination of the virus. And the public could reduce the risk to themselves and to their neighbours by staying indoors for one or two days when they fall victim to this common plague. It constitutes a great economic problem, which might commend itself to the new Nuffield Foundation.

Tuberculosis

The interruptions in the steady decline in mortality from tuberculosis during the First World War and again in the present one have brought home to us the need for greater and unremitting attack on this infection, which because of its chronicity presents problems of control very different from those of the acute respiratory diseases. The Government's wartime promise of more financial assistance to the families of affected persons is an enlightened step in the right direction. Over 90% of the deaths from tuberculosis result from contact with a case of "open" pulmonary infection, and four important points to remember if the downward trend is to be hastened are:

(i) Although most of the population are infected few become infective. Unlike most other pathogens, the tubercle bacillus has the peculiar property of burying itself in the body tissues, and only that minority of infected patients whose lesions break down spread the disease to others. Yet it has been estimated that about 250,000 cases of open tuberculosis exist in the community (Wingfield, 1942–3), and a large proportion of these are undiagnosed. Even among diagnosed cases there is an unduly long lag period between the onset of clinical symptoms and sanatorium treatment. In a recent series the average delay was 9 months, distributed as follows: 3½ months between onset of symptoms and reporting to the doctor; 3½ months before the doctor referred the patient to a tuberculosis dispensary; and 2½ months before the patient was admitted to a sanatorium. In only 22% of the cases was sputum sent by the practitioner to a laboratory for examination (Mann, 1943). Obviously the methods for earlier diagnosis and treatment of open tuberculosis need to be speeded up.

(ii) Tuberculosis is five times as common among intimate contacts of sputum-positive cases as among the general population, and tuberculous fathers are more common sources of infection for their children than tuberculous mothers. Thus the tuberculosis officer must concentrate on the family rather than on the individual, and the detection of early infection among contacts becomes a most important function of any tuberculosis service.

(iii) The most susceptible ages are infancy and adolescence. Among infants the infection is apt to become generalized and prove fatal; a large proportion of the adolescent cases will, if not diagnosed and treated early, join the ranks of the infective army. Much stricter regard to personal hygiene would reduce the risk of infection to young children, as shown by the fact that no child in the Papworth Colony has developed tuberculosis. Meanwhile more active efforts must be made to protect the susceptible children of tuberculous parents, and artificial immunization with vaccines of B.C.G. or Wells's vole bacillus may supply the need. Data from American and Scandinavian sources show that B.C.G. vaccine is a safe and relatively effective means of protecting children, nurses, and students in intimate contact with tuberculosis. For example, Baudouin in an investigation of more than 2,000 children of sputum-positive parents over a period of 11 years found a tuberculous morbidity of 31 per 1,000 among the vaccinated and 120 per 1,000 among the controls; the corresponding mortalities were 19 per 1,000, against 54 per 1,000 (see Hopkins, 1941). The problem of artificial immunization needs fresh consideration in this country, where in the past 10 years our attitude has been too conservative and apathetic. Mass radiography must be used to detect and control early infection in the adolescent. This is a long-term policy, and to be properly done the examinations should begin among children leaving school and be repeated at regular intervals.

(iv) Tuberculosis is closely associated with poverty, and malnutrition is probably one of the most important factors predisposing to clinical infection. It is therefore essential that milk, one of the best of foods for children, should be cheap, popular, and plentiful as well as safe to drink. The cheap-milk schemes for mothers and children and milk for school children must be continued and extended after the war. Milk-bars help to popularize milk as a beverage, and we may hope with Mellanby (1939) that "to give tea to children instead of milk may come to be regarded as bad form, just as it is now considered bad form for people to have unwashed ears."

The downward trend of tuberculosis probably owes more to the decline in poverty and to improved hygienic conditions in the com-

munity than to the institution of tuberculosis services; for the mortality rates in other respiratory infections have gone down *pari passu* with that of tuberculosis, and tuberculosis has declined at the same rate in countries with and without public health tuberculosis schemes. It is therefore proper to inquire whether the best use is now being made of the tuberculosis service and to stress again that the tuberculosis officer must be social worker as much as expert diagnostician.

Intestinal Infections

Paratyphoid and Bacterial Food-poisoning.—Typhoid fever is not only becoming rare in this country (mortality has fallen in 60 years from 371 to 6 per million) but should now be easier to control, for the Vi-antibody test and new phage typing facilitate detection of sources, usually chronic carriers, of infection (Felix, 1943; Bradley, 1943). On the other hand, paratyphoid has been unduly prevalent in recent years and bacterial food-poisoning has probably also increased. These two infections are perhaps more closely related epidemiologically than paratyphoid is to typhoid (Savage, 1942). Typhoid fever in epidemic form is often water-borne. Paratyphoid is rarely water-borne, and has a summer rather than an autumn prevalence, usually following contamination of milk, cream, or prepared food by a clinically mild case or carrier. Persistent carriers of the Salmonella food-poisoning organisms are rare, but healthy and convalescent carriers are much commoner than was previously thought, and it may be that the human host spreads infection as much as the more commonly suspected rodent. The control of these infections is largely dependent on a high standard of personal hygiene among food handlers, together with improved methods for the protection of milk and prepared foods against infection from human or animal sources. The 1938 Food and Drugs Act decrees that persons employed in a room used for the sale of food are required to observe due cleanliness as regards themselves, the room, and all articles in it; while suitable washing-basins with a sufficient supply of soap, clean towels, and clean water must be provided for their use. It will require much patient education by the medical officer of health and his sanitary inspector to get these regulations observed in the spirit as well as the letter. It might help if all persons handling food for sale were warned by prominent notices of the essential necessity for hand-washing after use of the w.c. and for reporting to their employer any attack of diarrhoea, however mild. The protection by impermeable wrappings of prepared foods against soiling by hands, flies, and vermin also needs to be greatly extended.

Bacillary Dysentery.—There has in the past 10 years been an increase in the reported incidence of bacillary dysentery, mainly perhaps because of the wider recognition of its presence in this country. Even so, many mild and atypical infections are neither recognized nor reported. Case-fatality is ordinarily low, and the worst feature of dysentery in temperate climates is its great infectivity. The introduction of new culture media (Hynes, 1942) has greatly improved laboratory diagnosis and has shown how common are convalescent and symptomless contact carriers, who are a particular danger in wartime: the great increase of dysentery among our troops in France from 1916 onwards was probably related to the transfer of men from the Middle East. In civil life the day nursery, the residential school, the infirmary for the aged, and the mental hospital are the most common foci of infection, but the disease is now endemic in many communities. Fortunately, the new intestinal antiseptics sulphaguanidine and sulphasuxidine can be expected to effect both clinical and bacteriological cure, and the practitioner must realize that bacteriological cure is as important for the welfare of the community as clinical cure is for the individual. The disease is largely spread from case to case by infection of food, and good personal hygiene is again the most important means of preventing it.

Gastro-enteritis.—Infantile diarrhoea to-day levies only one-tenth of the toll exacted 50 years ago; but even now, although the dreaded summer epidemics have gone, it ranks second to pneumonia as a cause of infant mortality, with over 3,000 deaths per annum. Epidemiologically it may be summed up as an infection of artificially fed infants living in urban poor-class districts. The bulk of the deaths occur in the first year of life, and there is little doubt that the disease would practically disappear if all mothers breast-fed their babies for six to nine months. The fact that only 30 to 50% of mothers feed their infants for even three months is due to a variety of causes. A longer period of rest after confinement, more home help, proper feeding of the mother, the care of the nipples before confinement, more frequent and complete emptying of the breasts during feeding to stimulate lactation and prevent infection through milk-stasis, and, in particular, education of both doctors and the lay public about the advantages of breast-feeding, would all help to secure proper lactation and thus save a large proportion of the 3,000 to 4,000 infants who die every year because they are not breast-fed. That is the long-term policy. Meanwhile the problems of the aetiology and treatment of gastro-enteritis require wider recognition and concerted attention from research teams of paediatrician, bacteriologist, and biochemist working in close co-operation. One point may be stressed: if infants with or liable to gastro-enteritis must be admitted to hospital they should be nursed by isolation technique in single rooms.

Childhood Fevers

Deaths from the four most important childhood fevers—pertussis, measles, diphtheria, and scarlet fever—have declined enormously in the past century. In particular, scarlet fever has ceased to be a killing disease, and now causes less than 5% of the deaths from these four fevers, compared with 40% some 80 years ago. The general decline in mortality has not been accompanied by a fall in incidence, and has occurred at different periods and at different rates for these four infections (see Gale, 1942-3). Deaths from scarlet fever fell precipitously between 1860 and 1900; there was an abrupt fall in the death rate from measles after 1915; diphtheria and pertussis have shown a more steady decline since 1900.

Pertussis.—I put pertussis at the top of the list for three reasons: (1) It is second only to diphtheria as a cause of death among children, and attacks about 70% of the child population, compared with 5% for diphtheria. (2) The protracted nature of the infection and its age of attack are such as to cause much debility predisposing to secondary infection. (3) It is a disease which by prophylactic inoculation can be either prevented or so modified as to cease to be a cause of death or a source of anxiety to parents. I prefer the name "pertussis" to "whooping-cough"; for the whoop comes late in the infection, and doctors and parents must be encouraged to suspect the disease long before it develops. Frequent spasms of coughing, congestive in type, occurring at any time of the day or night and unaccompanied by any physical signs in the chest, should suggest pertussis, and call for further examination. A white-cell count and a blood film at this stage will reveal a leucocytosis with a relative lymphocytosis of 60 to 80%. Confirmation can be obtained by use of the cough-plate, which, however, is troublesome and time-consuming for the practitioner. A more practicable substitute is required, and a post-nasal swab inoculated on to a plate of Bordet medium along with an appropriate dilution of penicillin to inhibit other bacteria may supply the need (unpublished observation). With such a method doctor or nurse can take the swab in the home, clinic, or nursery, and send it for examination in much the same way as is done for diphtheria. Early diagnosis means early segregation, which not only benefits the affected child but reduces the risk of infection to others. Pertussis is a difficult and trying illness for the mother to nurse at home, and a larger proportion of cases than at present should be removed to hospital. But in hospital toddlers should not be confined to bed, for plenty of fresh air and exercise to ventilate the lungs are essential for the treatment of pertussis. Collapse and atelectasis are as common complications as bronchopneumonia, and so long as the children are properly clothed and fed they should be outside most of the day and should sleep on open balconies at night. It is important, too, to impress on doctors and parents that a whooping child has usually passed the infective stage. Hospital beds to the required number cannot be provided if the child is isolated until the whoop disappears.

Prevention is better than cure, and prophylactic vaccination against pertussis is now a practicable and reasonably effective procedure (see Cruickshank, 1942a). Most of the field trials in specific prophylaxis have been carried out in America, where

large weekly injections for three, four, or five weeks, totalling 80,000 million to 100,000 million organisms, have been given. This involves administrative difficulties, and lately a well-controlled experiment by Bell (1941) has shown that two 10,000-million doses of an alum-precipitated vaccine at a month's interval will secure as good results as the more frequent weekly injections. Important points in the prophylaxis of pertussis are the use of a smooth-phase organism, large and slowly absorbed doses, and an interval of four weeks or more between the injections. It might seem an obvious forward step to use pertussis vaccine and diphtheria toxoid together for combined immunization against these two infections; but we must remember that the age of attack for pertussis is much earlier than that for diphtheria, and in fact about half the deaths from pertussis occur in the first year of life (see Table), so that immunization should, if possible, begin at the age of 3 months. Mothers welcome the idea of protecting their children against this disease, which they know from personal experience to be a protracted, worrying, and debilitating infection.

Measles.—The mortality from measles, even allowing for the diminishing population of children under 15, is to-day about one-quarter of what it was as recently as 20 years ago. About two-thirds of the deaths occur between the ages of 6 months and 2 years, mostly from secondary bronchopneumonia, so that the main problem in measles is to postpone the age of attack or modify the infection in young susceptible children. Complete protection is possible by the use of pooled convalescent serum given in 5-c.cm. doses within five days of exposure, but, except in hospital, the date of exposure is seldom known and convalescent serum is difficult to obtain, so that this method is not generally applicable. Besides, it confers only temporary protection for two to three weeks. A modified attack by giving a smaller dose of serum is preferable, but the same difficulties confront us. Thus to protect the young child from measles the choice lies between active immunization and avoidance of exposure. Stokes and Rake (1940) have grown measles virus on chick-embryo, and apparently protected monkeys and human volunteers by intranasal or subcutaneous injection of a virus vaccine; Mayer (1941) could not confirm the protection experiments. Research workers in this country will no doubt concentrate some of their post-war energy on this vital problem.

Avoidance of exposure is for the urban child virtually impossible, but some recent work suggests that it may be possible to postpone the age of attack. Measles, as Chapin pointed out many years ago, is an infection spread mostly from school. In Philadelphia irradiation of the ceilings of junior classrooms with ultra-violet light apparently prevented the epidemic spread of measles among the irradiated classes (Wells, Wells, and Wilder, 1942). If in this way measles among school children could be shifted from the younger to the older age groups, the chances are that the younger members of the family would be over the age of 3 years before being intimately exposed to infection brought back from school by their older brothers or sisters.

The increasing tendency to admit children with measles to hospital can only be commended if home conditions are such that the child cannot be properly nursed at home, the case is removed early, and preference is given to children under the age of 3 years. The respiratory mucous membrane in measles is particularly susceptible to attack by the haemolytic streptococcus and the pneumococcus, and wards are apt to be overcrowded during an epidemic, so that cross-infection, with resulting otitis media and other complications, is more likely to occur in hospital than at home. If measles is to be nursed in hospital, precautionary measures such as adequate ventilation and bed-spacing and oiling of floors and bed-linen must be taken in order to minimize the risk of secondary infection.

Diphtheria.—The value of active immunization against diphtheria is now generally accepted, and the active campaign initiated in 1940 had already by the middle of 1942 resulted in 73% of school children and 58% of pre-school children in Scotland being inoculated; and as deaths from diphtheria in Scotland in the first three-quarters of 1942 were less than half those in the corresponding period of 1940 it seems that the campaign is already producing results. The need now is to concentrate on the pre-school child and to make inoculation at the age of 1 year a routine social habit for all children. I should like to draw attention to two points:

(1) Infection by the more actively invasive strains (gravis and intermedius) may occur in the inoculated. Clinically such infections are usually mild, and could be called diphtheritic tonsillitis, for local inflammation without toxaemia is the characteristic feature. But it is well that both doctor and parent should know that prophylactic inoculation does not necessarily mean complete protection. (2) Diphtheria is a difficult disease to diagnose clinically. If there is any doubt, antitoxin should be given as early as possible, and the practitioner should know that with modern refined antitoxin there is little risk of serum reactions. Arrangements should also be made for doubtful cases to be admitted for observation to hospital. On no account must antitoxin be withheld until the bacteriological report on a swab is received

Scarlet Fever.—A problem requiring careful thought is whether the notification and hospitalization of scarlet fever is at present justifiable when in many instances the only difference between streptococcal tonsillitis and scarlet fever is that the patient with tonsillitis is immune to the erythrogenic streptococcal toxin and the other is not. Scarlet fever is to-day a mild disease, and where conditions are suitable cases could more often be nursed at home, particularly as in hospital the bulk of the complications are due to cross-infection. Forbes (1936) of Brighton showed that at least as many secondary or return cases followed the case isolated in hospital as did the case nursed at home. Another controversial problem which has considerable economic importance is the value of home disinfection after scarlet fever. The furnishings of a room where a case of streptococcal infection has been nursed are likely to harbour haemolytic streptococci, and when the patient leaves it the room should theoretically be disinfected; but Forbes's figures suggest that the *patient* is the most important focus, and many of the family contacts will already be infected before he is removed to hospital.

If scarlet fever is now a relatively mild infection the haemolytic streptococcus is still the most common pathogen concerned in cross-infection in hospital wards. Most of the complications of scarlet fever and measles, institutional outbreaks of puerperal sepsis, and secondary infection of wounds, and much of the sepsis in E.N.T. wards, are traceable to cross-infection with this organism. The solution of this problem requires a reorientation in our ideas about sources and channels of spread, and much co-operative effort between medical and nursing staff (see Cruickshank, 1942b).

Improvement in Methods of Control

This bird's-eye view of some of the problems in the control of infectious disease suggests that there is much work to be done, and that more efficient machinery is needed for the purpose. A periodic review of the methods for tackling these problems is essential if progress is to be made. Their solution may be considered under the headings of administration, education, structural improvements, and general preventive measures.

Administration.—The health services must be directed by executive and advisory committees, which will deal intelligently and progressively with the problems of public health without having to worry about local rates and taxes. Each community will be larger than that served by many existing local authorities, and preventive medicine will be intimately linked up with other branches of medicine. In each area there must be a field epidemiologist working in close collaboration with an up-to-date laboratory and with his energies directed to tracing causes of morbidity and mortality in various infections, advising about means for their prevention and control, and educating both practitioners and the public to co-operate with him to this end. How much can be done along these lines was exemplified in Rochdale, where the medical officer of health, with full co-operation from practitioners, instituted a campaign which resulted in a marked reduction in maternal mortality rates. A more precise example has lately been afforded by the work of Bradley (1943) in tracing to a common source apparently unrelated sporadic cases of typhoid fever. Unfortunately, very few of our medical officers have been trained for this kind of work.

As a bacteriologist I am naturally concerned that an adequate laboratory service should be available in all areas and readily accessible to all practitioners. The parent laboratory should preferably be associated with an infectious diseases hospital of at least 150 to 200 beds and resident medical staff. In sparsely populated areas the I.D. block should be within the curtilage of a general

hospital with a joint laboratory, for public health bacteriology need not be divorced from clinical pathology. The essential point is that there should be a real liaison between practitioner and bacteriologist instead of the impersonal postal service which is still too prevalent.

Education.—A most important factor in the control of infectious disease is education of the public in higher standards of personal and public hygiene. This education begins with the pre-school child, and for the purpose there must be a greatly increased number of nursery schools for children between the ages of 3 and 5. At this age the child can be taught good habits and, more important, may be prevented from acquiring the bad habits which are inevitable so long as slum-life is tolerated. At elementary schools more facilities must be given for the growing child to maintain the good habits which it has learned at nursery school. There is not much point in teaching a child cleanly habits, such as washing the hands after using the w.c. or before taking food, while sanitary arrangements at most schools are so unsatisfactory. For more senior pupils physiology must be taught, either by qualified teachers or by the school medical officer, whose duty it is to look after the health and physical development of the child. Incidentally, medical care of the child is a dynamic, not a static affair, and the same medical and nursing staff should be in close touch with the growing child from birth till he leaves school. Further, the sympathy and active co-operation of the teaching profession are essential for the proper discharge of school medical work. Classes in mothercraft should be run at evening schools for adolescent girls and at welfare centres for those who are already parents. A more extended service of health visitors, who must be specially selected and fully trained nurses, would also help in teaching parents the simple rules of hygiene, while the cinema is an excellent medium for health propaganda. Education of the medical profession will include more preventive medicine in the curriculum and frequent refresher courses for those who are already in practice.

Most of us are ignorant of the best methods for disseminating this new health education, and I should like to commend a more general utilization of the Central Council for Health Education, an independent body supported partly by a grant from the Ministry of Health and partly by financial help from local authorities which make use of its facilities. This body has been studying the principles of health education, and has a team of experts who are ready and willing to give help and advice on the many problems of health education and how they can be " put over " to the lay public.

Structural Alterations.—The first essentials are well-designed labour-saving houses in pleasant surroundings for the poorer classes. But with these must go a determined effort to eradicate the slum way of life, which has again been so terribly indicted in *Our Towns*. "Good food is easier to come by than a good home." To lighten the load of the mother with young children day nurseries may have to be continued after the war, although from the point of view of infection they are not unmixed blessings. If they are to prosper, methods for controlling the spread of infection in day nurseries, and, less urgently, in nursery schools, must be devised. Schools need better ventilation, lighting, and spacing, and adequate sanitary arrangements, including wash-hand basins. Hospitals for infectious disease should contain as a minimum 150 to 200 beds, of which upwards of half must be single-bedded chambers for isolation; wards must be small, containing 4 to 12 beds, and be well supplied with wash-hand basins, sterilizers, and the like.

General Preventive Measures.—The most important of these is better nutrition. To that end every mother of a family must have enough money to buy the necessary food, and must be taught what foods to buy and how best to cook them. In this connexion the Ministry of Food is doing a grand job of work, which must be continued after the war. Improved nutrition does not necessarily protect against infection, but when infection occurs its severity is often modified and the risk of complications lessened if the child's general nutrition is good. For example, deaths from measles between the ages of 1 and 2 years are 18 times as frequent among the poorest classes than among the well-to-do, yet measles attacks the poor and the rich alike, and this great discrepancy in mortality must be attributed to the conditions that go with poverty, of which malnutrition is one of the most important.

Improved methods of dealing with water-supplies and sewage have greatly reduced the incidence of intestinal infections. There has been no corresponding diminution in the incidence of respiratory infections, which present a much more difficult problem, although with our newer knowledge a greater measure of control should be possible. Some—e.g., diphtheria, small-pox, and pertussis—can be specifically prevented by prophylactic inoculation, and it may be that influenza and measles will be added to the group. Meanwhile we must consider whether exposure to air-borne infection can be reduced by preventing the spread of infected dust and by the use of aerial disinfectants. Infected dust in hospitals can be controlled by oiling of bed-linen and floors, a procedure which is particularly desirable in wards where there is a considerable risk of bacterial cross-infection (scarlet fever, diphtheria, and secondary infection in measles and influenza). Aerial disinfectants are probably more applicable to the control of respiratory virus infections, and the extended use of ultra-violet light, or of bactericidal mists and vapours, in hospitals, schools, cinemas, and other places of assembly might reduce the incidence of such common air-borne infections as the cold, influenza, measles, and chicken-pox.

Conclusion

Chadwick was a great sanitary reformer who impressed on our people the close association between poverty, dirt, and infection. In our day, as in his, poverty, dirt, and may I add ignorance, are still the most important contributors to the ravages of infectious disease. He looked forward to the time when sanitary reforms would eliminate the need for doctors. That day is probably still far distant, but meanwhile we can all, by taking thought, help towards making ours a health-preserving as well as a healing profession.

References

Bell, J. A. (1941). *Publ. Hlth. Rep.*, Wash., **56**, 1535.
Bradley, W. H. (1943). *British Medical Journal*, **1**, 438.
Browning, C. H. (1942). *Control of Common Fevers*, p. 168, London.
Burnet, F. M., and Clark, Ellen (1942). *Influenza;* Monograph No. 4, Eliza and Walter Hall Institute, London and Melbourne.
Cruickshank, R. (1942a). In *Control of Common Fevers*, p. 139, London.
—— (1942b). *Publ. Hlth.*, **56**, 17.
Felix, A. (1943). *British Medical Journal*, **1**, 435.
Forbes, D. (1936). *Lancet*, **5**, 1438.
Gale, A. H. (1942–3). *Proc. roy. Soc. Med.*, **36**, 97.
Hopkins, J. W. (1941). *Amer. Rev. Tuberc.*, **43**, 581.
Hynes, M. (1942). *J. Path. Bact.*, **44**, 193.
Mann, B. (1943). *British Medical Journal*, **1**, 283.
Martin, W. J. (1942). Ibid., **2**, 540.
Mayer, J. B. (1941). *Arch. Hyg. Bakt.*, **126**, 285.
Mellanby, Sir E. (1939). *Recent Advances in Medical Science*, London.
Our Towns: A Close-up (1943). London.
Savage, W. G. (1942). *J. Hyg.*, Camb., **42**, 393.
Stokes, J., and Rake, G. (1940). *Science*, **92**, Suppl. No. 2386, p. 10.
Van den Ende, M., and Thomas, J. C. (1941). *Lancet*, **2**, 755.
Wells, W. F., Wells, M. W., and Wilder, T. S. (1942). *Amer. J. Hyg.*, **35**, 97.
Wingfield, R. C. (1942–3). *Proc. roy. Soc. Med.*, **36**, 39.

EARLY TREATMENT OF WAR WOUNDS OF THE UPPER PART OF THE FACE*

BY

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The functions of seeing, breathing, eating, and the expression of emotion may all be seriously compromised as the result of wounds of the face and require surgical restoration. As, however, this paper is confined to the treatment of severe wounds of the *upper* part of the face, the function of eating need not be discussed further.

First aid in the field or forward dressing stations may first be described. When a high-velocity missile hits a soldier in the face he often feels only a local burning sensation, but he may be knocked to the ground. He then finds blood pouring from his wounds, and this bleeding is often so profuse that it may interfere with his vision or breathing. When he is picked up, a large dressing is inserted into and over the wound, and the affected part of the face firmly bandaged. This will usually suffice to stop the bleeding, but it is also of importance to shield his blood-stained and horrifying face from the gaze of other soldiers and patients. Though wounds of the face bleed furiously immediately after they have been inflicted, bleeding as a rule stops spontaneously in quite a short time, especially if a large shell-dressing is firmly applied and morphine is administered early. If blood runs back into the mouth or nose and causes difficulty in breathing, the patient is placed on his side or prone on the stretcher.

At the C.C.S., primary operative treatment and transfusion may be necessary. Facial wounds require more thorough cleansing than others because they are never excised and because it is important to avoid subsequent tattooing and "powder marks." They are washed or even scrubbed with soap and water, and irrigated first with peroxide and then with saline or acriflavine. Pieces of dirty clothing, visible metallic foreign bodies, and completely detached fragments of bone are removed. If a fragment of bone is attached to any

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soft tissue it must not be sacrificed, because it will probably survive, and its removal will be followed by deformity of the framework and contour of the face. In most cases the wound is filled by means of an insufflator with sulphanilamide powder or, better still if obtainable, sulphadiazine or a mixture of sulphathiazole and sulphanilamide. It is then covered with tulle gras and a large pad of saline gauze.

If there is a perforating wound into the mouth with loss of tissue, skin is sutured to mucosa round the edges of the defect. This requires great surgical confidence and courage, and many will be sorely tempted to draw the wound together under tension with a few big stitches, taking wide bites of the skin. That temptation should be boldly overcome, as this is the worst possible surgical treatment. *A facial wound should be sutured only if it is recent and there is no skin loss;* in which case fine silk stitches are inserted, taking minute bites of the edges but broad bites of the deeper layers of the skin. In this way accurate apposition and eversion are achieved. Stitches in the face are all removed two or three days after their insertion. If this routine is not feasible the wound must be left wide open; for Nature's scar on the face is far preferable to the one which follows meddlesome surgery. A natural scar can always be repaired later by some plastic procedure, but an operation scar with cross-stitch marks is irreparable. It is important to remember also that successful plastic repair can only be assured if the foundations of contour are restored. Defects in facial contour caused by deformities of the bony framework are repulsive because they often produce caricatures of normal expressions. For instance, a permanent grin on one side of the face is grotesque—provoking horror, which a surface-scar line rarely does, though it may be ugly. The first consideration, therefore, in making any "plastic diagnosis" must be the bony framework. This "plastic diagnosis," so often stressed by Gillies, is the estimation of displacement, or loss of tissue, first in the bony framework or contour supports, secondly in mucosal linings, and last of all in the skin covering. Moreover, the first stage in plastic treatment consists in planning beforehand the order and method of replacement of lost tissue or realignment of normal tissues, in relation also to the framework, lining, and covering of the face.

In applying these principles of plastic surgery *four* special areas may here be considered: the forehead and frontal sinuses, the orbital region, the nose and ethmoid sinuses, the cheek and maxillary antra.

Forehead and Frontal Sinuses

Wounds of the upper part of the forehead, when associated with fractures of the skull, are treated by the general surgeon or neurosurgeon in the early stages, but cases are often referred some time afterwards to the plastic surgeon, for repair of a deeply cupped scar of the forehead following a depressed fracture. In the plastic treatment of these cases scars are excised and the skin flap is most carefully separated from the underlying dura. The margins of the bony defect are defined on both surfaces. A suitably curved segment of the inner table of the iliac bone, with the smooth concave inner face towards the dura, is then inserted into the defect and fixed in position by stainless-steel-wire sutures. The skin flap is replaced after the contour has been repaired.

In treating a recent wound of the lower part of the forehead involving the frontal sinus, the posterior wall of which is intact, it is advisable to remove all loose fragments of bone and clot from the sinus and to drain it into the nose through a small rubber tube surrounded by a razor-graft taken from the inner arm. In a few cases the forehead wound may then be closed without external drainage, but in most gunshot wounds with severe comminution and loss of tissue this is impossible and the wound must be left wide open.

When the posterior wall of the frontal sinus is fractured and the dura torn, repair of the dura by a fascia lata graft, using a transfrontal approach, is necessary, and the case should be transferred at once to the care of a neurosurgeon.

Orbital Region

In the orbital region, plastic surgery starts after the ophthalmic surgeon has examined the eye and when he has carried out any treatment necessary for the eye itself. In fact, close co-operation with the ophthalmic surgeon is essential during all stages of plastic repair. Wounds of the orbit will be discussed under the headings of deformities of the bony margins, and deformities involving the soft tissues—i.e., eyebrows, eyelids, eyelashes, and the eye-socket.

Bony Margins.—If portions of the orbital ridges are displaced they should be reduced as soon as possible even if quite loose. If any soft tissue remains attached to these fragments the bone must be retained. On the other hand, if there has been loss of bony tissue or a long delay in replacement it is usually wise to insert a small iliac-bone graft. When the supra-orbital margin is missing the graft is inserted through an incision in the eyebrow; when the infra-orbital plate is defective an incision is made behind the hair line in the temporal region.

Eyebrows are replaced by Wolfe grafts from the post-auricular region on the same side. In making the bed to take these grafts, a small triangle of scar tissue is excised from the medial extremity of the wound and the outer angle is tapered. It is most important to implant the graft so that the hairs are growing downwards and outwards, and it is also wise to warn the patient that the hairs transferred in the graft will all fall out, but will be replaced by others in three months' time.

Upper *eyelashes* are made by a Wolfe graft from the opposite eyebrow, the lower lashes from the eyebrow on the same side.

Eyelid deformities without severe loss of tissue may be repaired most satisfactorily by excision of the scars, division of all adhesions, and then sliding lateral flaps so that one is fixed above the other. Vertical suture lines in the eyelids should be avoided, and subcuticular catgut stitches are generally used. When, however, there is a severe loss of eyelid skin causing ectropion—for instance, after a burn—skin-grafting is always indicated. In second- or third-degree burns of the eyelids, razor-grafting associated with tarsorrhaphy should be undertaken as soon as possible as an emergency procedure to prevent corneal ulceration. When ectropion results from scar contracture in burn cases, Thiersch grafts should be applied on accurately fitting Stent moulds for the upper lids, and the inner side of the upper arm is the most suitable donor site. When used for the lower lids, however, this type of graft tends to look rather pale or parchment-like. A Wolfe graft taken from the back of the ear gives the best results for the lower lid. When ectropion is established, both upper or both lower lids may be grafted at the same operation, but it is rarely possible to obtain the necessary over-correction if the upper and lower lids on the same side are grafted on the same occasion, except in a patient who has been recently burnt. In burn cases it is most important to over-correct the ectropion and to divide all adhesions, and it is wise to let in one and a half to twice the area of skin which appears to have been lost. In burn cases the usual mistake is under-correction; over-correction is extremely rare. Contraction of the graft occurs always, but "puckering of the graft" may be prevented if grease massage is started 10 to 14 days after operation.

When the eye has been lost and the remaining socket is too small to retain an elegant artificial eye an epithelial inlay is advisable. After the remnants of mucosa have been excised a new skin-lined socket is made by burying a thin razor-graft which is draped over a disk-shaped gutta-percha mould perforated in the centre.

Deformities of Nasal Contour, with Damage of Ethmoid Sinuses

In modern warfare, when armoured vehicles often capsize and motor-cycles collide, serious blows on the centre of the face are common, and result in various types of deformity of the nasal contour frequently associated with damage to the ethmoid sinuses, and a variety of facial wounds.

Fracture of the nasal bones and nasal processes of the maxillae may result from: (i) a direct or forward blow on the bridge of the nose causing it to cave in; (ii) a lateral blow causing lateral deviation and comminution of the nasal processes; (iii) an upward blow on the under-surface of the tip of the nose which results in telescoping of the bridge and septum.

In practice, a combination of two or three of these types of injury is quite often seen in one patient.

The optimum period for replacement of the nasal framework is within 48 hours of the injury, but it can be undertaken quite satisfactorily within four days. Under intratracheal anaesthesia, disimpaction is carried out by the Gillies–Kilner technique. Using Walsham's forceps, both nasal processes are everted, then the septum is straightened and the nasal bones are elevated with Ashe's forceps. Finally, the nasal processes are pressed inwards and the bridge is narrowed. This position is maintained for four to six days by a Safian brace, or by the St. Louis type of mattress suture. Later cases of traumatic nasal deformity require intranasal refracture by means of a Safian saw or a chisel. When the saddle deformity is persistent a small iliac-bone graft is inserted through a columella-splitting incision. Rib cartilage is not suitable for this purpose because it occasionally bends in a most disconcerting manner some months afterwards.

More violent blows on the front of the face cause a circular depressed fracture of the maxillary block. The centre of the face "caves in" and a "dish-face deformity" results. If this is not reduced the patient has a permanently sad expression with hollows under the eyes, and the base of the nostrils sinks inwards, giving the face a negroid appearance. Minor "dish-face" deformities can be reduced by gradual elastic traction applied to the sunken maxilla through upper dental splints by means of a headcap bearing an anterior bar. Severe "dish-face" deformities are often associated with fractures of the base of the skull through the cribriform plate and comminution of the ethmoid cells. Cerebrospinal rhinorrhoea may result and there is a danger of meningitis. In the past it was thought to be advisable to wait until the patient was out of danger before attempting reduction, but usually by this time reduction was impossible. Immediate and forcible reduction with lion forceps has been suggested in some of the cases. Cone and the Montreal school of neurosurgeons in certain cases of cerebrospinal rhinorrhoea advise direct repair of the torn dura from above, using fascia lata and a transfrontal approach.

Wounds and Associated Deformities of Cheek and Maxillary Antrum

The malar bone and zygomatic arch take the full weight of all blows upon the cheek. A blow from the front, if severe enough, drives the malar inwards through the anterior wall of the antrum. The body of the malar, being very strong, is rarely fractured, but its zygomatic, frontal, orbital, and maxillary roots are commonly injured, with the result that the bone itself is not only depressed but also rotated downwards. A severe blow on the side of the face causes the zygomatic arch to cave inwards. Unless seen on the day of the injury, before the swelling of the cheek has occurred, these deformities are usually missed. The symptoms and signs to look for in these cases are: (1) Bleeding from one side of the nose due to haemorrhage into the antrum. (2) Diplopia due to depression of the orbital plate. (3) Pain and numbness in the distribution of the infra-orbital nerve. (4) Bruising of the cheek and subconjunctival haemorrhage. (5) Flattening of the upper part of the cheek, a hollow under the eyes, and fullness of the lower part of the cheek. There is usually a notch palpable on the infra-orbital margin. (6) Interference with mastication is not uncommon. It is due to pressure of the displaced zygomatic arch upon the coronoid process or injury to the temporal muscle near its insertion. This may cause pain on chewing, slight trismus, or, on opening the mouth, deviation of the lower jaw to the opposite side, a position which appears to be one of mandibular rest.

Depressions of the malar or zygomatic arch without an associated external wound are common in mechanized warfare. They should be elevated with a lever as soon as possible, preferably within three weeks of the injury, by the Gillies approach through an incision within the hair line of the temporal fossa.

In later cases a combined temporal and buccal approach is often required. The malar bones require fixation after operation by a sulphanilamide and vaselined-gauze pack in the antrum or by external pin fixation. In the most severe deformities in which there has been loss of bone an iliac-bone graft is inserted behind the cheek through a temporal incision.

Conclusion

Six elementary principles in the early treatment of wounds of the upper part of the face may be emphasized:

(i) Cleanse the wound most thoroughly with soap and water, peroxide, and saline.

(ii) Never excise a facial wound.

(iii) Save the framework of the face even if it is loose; sacrifice a bony fragment only if it is completely detached from all the surrounding tissues.

(iv) If there has been any skin loss, pack the wound with sulphanilamide powder and leave it open.

(v) If there has been no skin loss and the wound is recent, insert fine silk stitches and remove them within three days.

(vi) In the face, never insert a few big stitches under tension; they usually lead to serious septic complications and will always be followed by an irreparable scar, which will remain a disfigurement for life.

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SPECIFIC GRAVITY OF THE CEREBROSPINAL FLUID

WITH SPECIAL REFERENCE TO SPINAL ANAESTHESIA

BY

W. ETHERINGTON-WILSON, F.R.C.S.

In 1932, after many months of exhaustive experiments with glass spinal canals (mock spinal analgesia: Etherington-Wilson, 1934, 1935), I came firmly to the conclusion that the best single method of control and accuracy in all types of spinal nerve-root block lay in the technique of *timed vertical ascent*. As time passed, this work has had recognition, and is now known as the Etherington-Wilson technique. Prejudice against the use of hypobaric solutions in the sitting-up position was widespread all over the world, but this bogy has, I believe, in some measure been allayed. Such a technique, however, demands knowledge of the specific gravity of the cerebrospinal fluid in normal individuals and in pathological conditions, and also that of the solution injected. If these two solutions vary to any great extent it might be supposed (rightly) that the technique will not always be reliable. The solution supplied (like nupercaine and others) is, however, of known specific gravity. Cerebrospinal fluid is alleged to have markedly varied readings: extravagant differences are quoted—1.004 to 1.012, and even greater diversities. If such estimates were arrived at by some form of small hydrometer, or there was delay in testing, or no account was taken of the temperature of the fluid at the moment, then such computed answers were inevitable. My experience of the use of a small hydrometer of the usual type was one of difficulty and error: repeated examinations of a single specimen of cerebrospinal fluid would register wide disagreement.

These variable quotations have passed from book to book and have been used in criticism of my technique in spinal nerve-block. Experience of results in over 1,500 spinal anaesthesias did not bear out the truth of such ready, unpractised judgment. In short, the assertion comes rather as a challenge and a stimulant, and involves a duty. Hence the investigation which follows. Contact with others suggests that many anaesthetists still accept the idea that the sp.gr. of the c.s.f. *in situ* at body heat produces an average figure of 1.007 to 1.008. This is not even near the truth, and sp.gr. is, of course, of some importance in certain forms of spinal nerve-block. The sp.gr. of the c.s.f. was tested in 314 consecutive cases, at all seasons of the year, during seventeen months, a great variety of individuals being represented.

Specific gravity beads, carefully tested and cared for, were used for the purpose. All estimations were done personally, the first few being discarded until I felt that some of the tricks, if any, had been mastered. One person only in the theatre occasionally checked the results. Patience, some adeptness, and experience had to be acquired to get results, allowing for a possible margin of error in temperature represented by a reading of 1° F. when using a solution thermometer. A clinical thermometer was also used on occasions as a check, for beads within its range of calibration. As an additional and comparative means of securing accuracy different bead tests were carried out on each specimen.

Apparatus

The specific gravity beads used ranged from 1.000 to 1.008, and each had a distinguishing colour. The greatest care was taken to keep clean and well washed, after use, in distilled water. The same applies to the test-tubes and thermometer. A special rack of six narrow test-tubes having an internal diameter of 3/8 to 1/2 in. were found most useful. They allowed of the collection of 2 c.cm. or less of c.s.f., which rises to a height of about 1¼ in. up the tube. Each tube is closed after filling. Four numbered corks were kept on the rack for this purpose. All tubes were dry before use. When not in use, and after cleansing and drying, they were kept locked up and stoppered. A wide-scale Fahrenheit thermometer, tested for accuracy, very narrow, and much longer than the test-tube, was used throughout without change. The end containing the mercury should be of short length. A magnifying glass, apart from its obvious use for noting the thermometer markings, is necessary for watching the bead movements. Hot- and cold-water taps were utilized for heating and cooling the c.s.f. in the test-tubes when trying out a series of beads. Iced water was also used for the heavier beads, but, apart from interest and as a check-up, is not essential. All specific gravities were carefully recorded, with notes appropriate to the case—e.g., age, sex, general condition, pathological state, high blood or c.s.f. urea or sugar or bile, repeated estimations, etc.

Method of Estimation

Cerebrospinal fluid was allowed to drip into the narrow test-tube. The latter was corked if not immediately tested, but all estimates were carried out within 3 to 4 hours. In the series of 314 cases an average of three different beads was used for each fluid. In a great number of cases many more beads were required—as many as eight for one specimen. An average time of 15 to 25 minutes was taken over the testing of each fluid. The use of more than one bead in each test was of course of value as a check against slight errors. Thus, on the average, it was found that with a specimen of c.s.f. at 99° F., 91° F., 83° F., and 74° F. the sp.gr. recorded by the beads was 1.003, 1.004, 1.005, and 1.006 respectively. The sp.gr. was judged correct when the bead remained absolutely motionless, floating and away from the bottom or upper level of the fluid. This is confirmed by tapping or shaking the tube to move the bead and watch its behaviour. When motionless the thermometer, which has been held in the fluid all this time, is immediately read.

Before any readings are begun care is necessary to allow the bead to get well "soaked" in the c.s.f., and any bubbles adherent are easily dislodged by a sharp shake or tap of the test-tube. In many suitable cases the c.s.f. was used for inquiry into the sugar, urea, chloride, and protein content.

Types of Cases

As much variety of individual and circumstance as possible was hoped for and obtained in this consecutive series of 314 cases, spread over from Oct., 1942, to Feb., 1943. Ages varied from 2 and 5 years to 88 and 90 years (see Table). The table also shows the details of sex, healthy or ill, hospital or private patients. Among these cases were local people, some from other parts of the country, foreigners, soldiers; tall, short, thin, obese. Some were well, others suffered from such diverse conditions as pyrexia (various), wasting, anaemia, various degrees of blood loss, emergencies, jaundice, alcoholism, dieting, inoperable carcinoma (abdominal), intestinal obstruction—early, late, and moribund—tuberculosis, early and full-term pregnancy, ascites, vomiting, diabetes, chronic high or low blood pressure, high blood urea, megacolon, gastric stasis, head injuries, otitic hydrocephalus; some received glucose-saline or blood transfusions. Twenty patients had a second lumbar puncture, at times varying from two days to a few weeks to many months; a second examination of the fluid was carried out for comparison.

Table of 314 Cases

Age :	1–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–	Hosp. Cases	Private Cases	Healthy	Ill	Multiple C.S.F. Exam.
Males (142) ..	2	9	8	16	16	32	34	22	3	–	–	–	–	–
Females (172) ..	1	12	17	28	32	29	34	15	4	–	–	–	–	–
Total (314) ..	3	21	25	44	48	61	68	37	7	225	89	194	120	20

Results

In this series it was found, in spite even of pathological states which affect the c.s.f., that the sp.gr. of the latter varies only very slightly. From the spinal anaesthetist's point of view the small difference can be disregarded. The ascent of a solution up the spinal canal is but little quickened if the sp.gr. of the c.s.f. is 1.004 at body temperature instead of the average 1.003+. In no patient in this group (apart from high sugar, high urea, or deep olive malignant jaundice) was much appreciable difference noted, and no case was found to have a sp.gr. of 1.004 at normal body temperature. The uniformity of result was so monotonous that I was able to demonstrate that the temperature of the c.s.f. could be forecast when the bead was suspended in midstream and resting. From this long and continuous series of cases the following points were extracted.

1. The sp.gr. of the c.s.f. at any given temperature is remarkably constant.

2. Variations do occur, but they are slight and are found especially in cases with high c.s.f. sugar. An occasional healthy individual, be he old or young, may show a sp.gr. greater or less than the average (9 cases in 314). Such variations (except in very high sugar content) do not amount to a whole point (i.e., 1.003 to 1.004). Unfortunately I have not had the opportunity of testing a case in which the c.s.f. sugar was more than 90 mg. per 100 c.cm. It was clear, however, from my three diabetic cases in this series that sugar is the most potent cause of the rise in specific gravity. Such a rise will not be found excessive even probably with a content of 200 mg. per 100 c.cm. Moreover, such a case would not knowingly be subjected to operation.

3. Other conditions in which a detectable change was noticeable by means of the bead estimation were:

(*a*) High blood or c.s.f. urea.—Nine such cases were examined, the highest urea being 428 mg. The sp.gr. was slightly increased in 3 cases but much less marked than in high-sugar cases.

(*b*) Glucose-saline intravenous drips in two out of six cases showed a slightly higher sp.gr. The remaining four, two or which had blood transfusions, were normal.

(*c*) Severe vomiting with some dehydration raised the sp.gr. figures in one out of four cases; one case also showed a lowered estimate.

(*d*) Severe blood loss or marked anaemia lowered the probable average sp.gr. slightly.

(*e*) Intense olive jaundice (malignant), with a tinged c.s.f., showed a rather lower sp.gr. than normal in three cases. Four other cases in which jaundice was not so marked did not reveal any change.

(*f*) The lowest reading obtained in the series of 314 cases occurred in a rare surgical condition which will be recorded elsewhere. A man aged 52, on whom I did a gastro-jejunostomy twelve years ago, developed a retrograde acute jejuno-gastric intussusception in 1942. Diagnosis was easy, being the second attack, operation prompt, and recovery uneventful. Retching and vomiting had been severe, but not prolonged enough for dehydration in such a case. No explanation is forthcoming to explain the lowest sp.gr. of the series, which was nearly a whole point at variance with the normal average.

In one case of each of the following conditions there was no change from the average sp.gr.: cerebral tumour, cerebral contusion, spinal myelitis, and early tuberculous meningitis (c.s.f. protein 200 mg.). Seven c.s.f. specimens were blood-tinged. Twenty repeated puncture specimens were the same as the first estimations. Attempts to show tendencies to vary owing to age and sex were inconclusive. All that can be said is that in males a larger number of slightly higher specific gravities will be met with than in the females. The

sp.gr. was identical in three individuals aged 2, 5, and 90 years—the youngest and oldest of the cases. Apart, possibly, from an undiscovered very high c.s.f. sugar content, no noteworthy change has been presented in the c.s.f. specific gravity from the pathological conditions which have been specified. From the spinal anaesthetist's point of view, and *especially* for those who use a timing technique, such a report may be reassuring.

Conclusions

The specific gravity of the cerebrospinal fluid at normal body temperature remains between 1.004 and 1.003, and is nearer 1.003.

The constancy was remarkable in a consecutive series of 314 cases of great variety.

The usual pathological states of the c.s.f. which may be met with can be ignored when spinal nerve-block is contemplated. Much more so is this the case in the healthy subject.

In an experience of over 1,500 spinal anaesthesias by my timing technique there has been no case of loss of control of the ascending hypobaric solution (nupercaine and spinocaine). It has therefore not been any surprise to find that the sp.gr. of the c.s.f. varies in but small degree.

I have to thank Dr. H. A. Fielden for the pathological work at the Torbay Hospital laboratory; and to my anaesthetists, Drs. R. A. Lattey and M. Lambie, I am grateful for the collections of cerebrospinal fluid.

REFERENCES

Etherington-Wilson, W. (1934). *Proc. roy. Soc. Med.*, **27**, 323.
—— (1935). *Anesth. & Analges.*, **14**, 102.

TRAUMATIC ARTERIAL SPASM*

BY

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The interest created in recent years in this subject by a number of writers—notably, Griffiths (1940), Barnes and Trueta (1942), and Cohen (1940-1)—has prompted me to report this case of traumatic arterial spasm, associated with a closed fracture of the tibia and fibula in the middle third resulting in gangrene and amputation.

Case Report

A gunner aged 30 was struck on the antero-lateral aspect of the middle third of the right leg by a gun limber at 9 a.m. on Feb. 25, 1942. He was admitted to hospital approximately six hours after injury with the leg in a Thomas splint, with traction from his boot to the foot of the splint. *X*-ray plates revealed a fracture of both bones of the leg in the middle third with practically no displacement. He was taken to the operating-room, where inspection of the leg revealed some swelling at the site of fracture. The patient complained of severe pain at and below the site of fracture, and was given morphine gr. 1/4. He had been given morphine gr. 1/4 an hour and a half before admission.

Under pentothal and cyclopropane anaesthesia the Thomas splint and boot were removed. The circulation in the foot and toes appeared normal, judged by colour and warmth, but no attempt was made to feel pulsation in the dorsalis pedis or posterior tibial arteries. There was no wound or sign of injury in the whole limb aside from the swelling at the fracture site. A Steinmann pin was inserted through the os calcis and, with moderate traction of 15 lb. on a Braun splint with a well-padded wooden cross-bar against the junction of the middle and lower thirds of the thigh, a skin-tight plaster was applied from the toes to the tibial tubercle, incorporating the Steinmann pin. This took only about 15 minutes, and then the traction was released and the plaster carried up to the groin with the knee in flexion. The limb was then placed on a Braun splint with 7 lb. traction, the foot of the bed being elevated.

During the night the patient complained of severe pain in the leg, and was seen by the duty medical officer. There was no swelling of the toes and the circulation appeared normal. He required two injections of morphine gr. 1/4 during the night for severe spasmodic pain in the leg at and below the fracture site.

At 9 a.m. on Feb. 26 the cast was bivalved because of his complaints of pain, and the anterior half removed, leaving the posterior half as a back splint. The circulation in the toes appeared normal, but there was no pulsation in the dorsalis pedis artery. He had anaesthesia from the site of the fracture, distally involving the toes, and had no movement in the toes. At this time he claimed that the foot and toes had felt "dead" immediately after injury. No sign of any pressure or tightness of the cast on the limb was observed.

At midnight on Feb. 26—39 hours after injury—the anterior tibial compartment seemed to be considerably swollen and tense, but the colour of the toes and the circulation in them appeared satisfactory. He was taken to the operating-room and the anterior tibial compartment was opened by a vertical incision. The muscles were somewhat greyish in colour and did not contract on stimulation. The anterior tibial artery was exposed, and was found to be contracted and pulseless. The artery was stripped of surrounding areolar tissue and freed through most of its course right up to the foramen in the interosseous membrane. Pulsation did not return after this procedure. There was no sign of injury to the artery, and no haemorrhage in the anterior compartment had occurred. The wound was left unsutured, with vaselined gauze dressing.

On Feb. 27 the degree of circulation to the toes had notably decreased; the toes were very cold and somewhat cyanotic, and the anaesthesia remained as previously described. He had a temperature of 101° F. and was still complaining of excruciating pain in the foot and leg.

He was taken to the operating-room again and excision of the dead muscles of the anterior tibial compartment was performed. The muscles were very grey and were obviously completely dead, with no response to stimulation. The only ligature applied was to the anterior tibial artery, which had a very slight ooze from it prior to application of the ligature. The wound was left open, with vaseline packing. At the time of operation the foot had a cadaveric appearance. A posterior incision was made at this operation to determine if the same condition had occurred in the posterior part of the leg. The gastrocnemius contracted readily on stimulation, so the wound was closed.

On Feb. 28, at noon, the toes were discoloured and definite gangrene was present in the foot. The temperature was 101° and the pulse 110, and the patient was still complaining of excruciating pain in the leg in spite of repeated doses of morphine. Amputation was done in the thigh, with a 12-in. stump. No tourniquet was used, and only four ligatures were necessary. No pulsation was present in the femoral artery just above the adductor tubercle, and the artery was very contracted. It was divided above this point, where pulsations could be felt. There was no sign of any injury in the tissues of the thigh or to the femoral artery itself.

Immediate dissection of the amputated leg revealed that the femoral, popliteal, posterior tibial, and peroneal arteries were contracted to the size of a fine string—about one-quarter their normal diameter. The vessels were carefully dissected and opened into their smaller branches; no sign of thrombosis or injury was present in the arteries or veins. There was a slight haemorrhagic exudate along the posterior tibial vessels and nerve. The muscles in the posterior compartment had degenerated. The superficial part of the gastrocnemius was only very slightly greyish in colour, whereas the deeper muscles were markedly grey and degenerated.

The stump healed by first intention and the patient made an uneventful recovery.

Comments

It would appear that this patient had persistent and extensive arterial spasm, affecting not only the main vessels but also the collaterals to such a degree that it resulted in massive death of muscle tissue first, followed by gangrene of the limb, necessitating amputation three days after the original injury. There was absolutely no sign of injury to the femoral, popliteal, tibial, or peroneal vessels. The sympathetic reflex vasospasm set up at the time of injury to the antero-lateral aspect of the leg in the middle third was not relieved by stripping of the anterior tibial artery.

No forcible distraction or manipulation was necessary, and Böhler's frame was not used. It is highly improbable that the method of maintaining position during application of the plaster could have aggravated the vasospasm.

On removal of the plaster there was no sign of pressure or tightness of the cast at any point.

Even after amputation, 75 hours from the time of injury, the vessels on dissection were still in a marked state of spasm.

The symptom of excessive pain on admission of a well-splinted fracture should make one suspicious of traumatic arterial spasm.

The aetiology and treatment of arterial spasm have been adequately dealt with in the references quoted, and a detailed discussion would be out of place in this case report.

REFERENCES

Barnes, J. M., and Trueta, J. (1942). *Brit. J. Surg.*, **30**, 74.
Cohen, Sol M. (1940–1). *Guy's Hosp. Rep.*, **90**, 201.
Griffiths, D. L. (1940). *Brit. J. Surg.*, **28**, 239.

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A COMMON CAUSE OF DIARRHOEA, VOMITING, AND DEHYDRATION IN INFANTS

BY

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Disease in infants is frequently characterized by diarrhoea, vomiting, and increasing dehydration. Sometimes this condition is due to gastro-enteritis, proved by the discovery of a causative organism in the stools and post-mortem appearances in the intestine. More often, however, no causative organism is discovered, and at necropsy no abnormality is found in the intestine. It is obvious, therefore, in this type—and it is exceedingly common—that the diarrhoea, vomiting, and dehydration are not due to gastro-enteritis, and that such a diagnosis, if made, is incorrect. The object of this communication is to point out a condition in this type of case which, though frequently unsuspected, is commonly present, to describe how it is acquired, and to give reasons for the belief that it accounts satisfactorily for the symptoms.

It is well known that at post-mortem examinations on children who during life had suffered from diarrhoea, vomiting, and dehydration an unsuspected purulent mastoiditis is frequently discovered on both sides. As an explanation it has been suggested that the mastoiditis is a terminal event. But since mastoiditis, if present, as will be shown later, can be diagnosed with certainty two or three weeks before death, this explanation is unconvincing. We are forced, therefore, to the conclusion that many infants dying from diarrhoea, vomiting, and dehydration have had in addition an unsuspected bilateral mastoiditis two or three weeks before death.

Method by which Mastoiditis is Acquired

The Eustachian tube in infants is more horizontal than in adults and, as in them, opens with each act of swallowing. When the child is lying on his back the tube is perpendicular, so that when open, as in swallowing, any foreign liquid in the post-nasal space is free to pass by gravity and suction into the tympanum and mastoid antrum—in this way milk, vomit, or infected mucus is offered an easy entrance. It is well known that a majority of infants suffering from severe diarrhoea, vomiting, and dehydration are well under 1 year old—too young to sit up—and are bottle-fed, often while lying down, in an ideal position for milk or any other liquid to reach the mastoid antrum through the Eustachian tube by gravity and so cause a mastoiditis. Diarrhoea, vomiting, and dehydration, and therefore mastoiditis, however, are not confined to children who cannot sit up and are bottle-fed. It frequently happens that a child who is in hospital suffering from some air-borne infection, after having recovered from it develops diarrhoea, vomiting, and dehydration. These children have been too ill to sit up, so that infected mucus or liquid food or vomit in the post-nasal space can easily enter the mastoid cavity, infecting it in the same way.

We may conclude, therefore, that mastoiditis is commonly caused by milk, vomit, or infected mucus entering the Eustachian tube in children who are either too young or too ill to sit up, and are accordingly nursed and perhaps fed while lying on their backs.

Pathology of Diarrhoea, Vomiting, and Dehydration due to Mastoiditis

We have come to the above conclusion that gastro-enteritis is not the cause of diarrhoea, vomiting, and dehydration because this condition is not present. That mastoiditis is the cause is based upon the fact that after operation these symptoms have often rapidly disappeared. The tympanic cavity and mastoid antrum are supplied by parasympathetic fibres from the seventh and ninth cranial nerves. When these cavities are inflamed the nerve endings are stimulated, causing a parasympathetic reflex whose afferent limb travels in the seventh or the ninth nerve, the efferent limb in the tenth, which supplies the intestine with secretory fibres. The normal harmony between parasympathetic and sympathetic innervation is upset in favour of the parasympathetic, leading to hypersecretion, evidenced by diarrhoea, vomiting, and dehydration.

Diagnosis

We must remember that an infant cannot tell us that he has earache; that it is impossible to find out by pressure over the mastoid whether he has pain or not; that discharge from the ears is seldom present; that examination of the tympanic membrane is often impossible, and even when a view is obtained the appearances may be equivocal; and, finally, that only very rarely is there a swelling behind the ear. In fact, none of the ordinary physical signs associated with acute mastoiditis in elder children is present. Yet in addition to diarrhoea and vomiting a careful examination will elicit additional symptoms and physical signs which allow a diagnosis of mastoiditis to be made with certainty. Perhaps a recent rise in temperature has been noticed; the child has begun to cry out as if in pain; he puts his hand to his head and rolls his head on the pillow, causing a bald patch on the back of his head. On rare occasions a discharge appears from one or both ears. The tympanic membrane, if seen, may be pink or may lack the normal lustre. Almost invariably the lymph nodes in the posterior triangle of the neck are enlarged so that they roll under the finger. This is the most significant physical sign, and is of greater diagnostic value than the appearance of the tympanic membrane.

It may be said with confidence that if a child suffering from diarrhoea and vomiting has enlarged glands in the posterior triangle and has in addition some of the above physical signs, a mastoiditis is present. If this child is losing weight and going downhill in spite of sulphonamides and intravenous salines a mastoid operation is urgently required to save his life. It is not suggested that all cases suffering from mastoiditis require operation; many recover spontaneously, probably helped by sulphonamides and certainly by intravenous salines and blood transfusion. In a certain number, however, the mastoiditis is progressive, and these patients, unless treated surgically, will inevitably die.

Prevention

It has been shown above that mastoiditis occurs chiefly in bottle-fed infants who, being too young to sit up, are fed lying down, and also in elder children suffering from air-borne infection or other illness which has rendered them too ill to sit up. On this account such children have been nursed and perhaps fed in the recumbent position—a position which invites mastoid infection by liquid food, vomit, or infected mucus passing through the Eustachian tube. It is therefore suggested that children should never be fed while lying down, nor should they ever be allowed to lie for a long time on their backs; they should be propped up in bed and constantly changed from side to side if too young or too ill to do so themselves.

The operation in itself is an extremely simple one and can be completed on both sides in about 15 minutes. If the child has no air-borne infection light ether anaesthesia is satisfactory, but should there be bronchitis or pneumonia or a suspicion of any form of pneumonitis a local anaesthetic should be given. It must be stressed that the condition, as its aetiology suggests, is nearly always bilateral, and that the best results are achieved by opening both mastoids at the primary operation.

Conclusion

It would appear relevant to state that the remarks made above are the result of work done chiefly at the Royal Liverpool Children's Hospital in co-operation with the physicians and surgeons during the last 20 years. During this period more than 2,000 cases of progressive mastoiditis have been selected for operation; all of them were obviously going downhill, and in the vast majority mastoiditis was proved at operation. Without surgical aid all would have died; after operation approximately 80% recovered. It is clear, therefore, that were co-operation between physician, general practitioner, and aural surgeon more complete and more universal the death rate among infants would be materially reduced, possibly even halved. It is stressed that when diarrhoea, vomiting, and dehydration is due to progressive mastoiditis the condition cannot be cured by sulphonamides, intravenous salines, or changes of diet.

Medical Memoranda

Plantar Dislocation of the Fourth Metatarsal

Dorsal dislocation of the head of a metatarsal bone is not infrequently encountered in orthopaedic and surgical practice, but plantar dislocation appears to be uncommon and almost unique. A diligent search of the literature has failed to disclose any report on such a case, and the condition is not mentioned in any of the standard orthopaedic textbooks consulted. The following example came under my observation in Oldmill Hospital, Aberdeen:

Case Report

A soldier aged 28 was admitted to hospital complaining of pain and swelling in the sole of the foot, aggravated by walking. He gave a history of having been at a dance four days previously, and, while leaving the hall, having "slithered down two stairs," landing on the "ball of his right foot." He felt a sudden sharp pain, but was able to walk without much inconvenience for the rest of the evening, and reported for duty as usual next day. At the dance he was wearing light-weight patent-leather shoes of the usual type. During that afternoon he began to complain of a dull pain in the sole of the left foot, which had become somewhat swollen. On the following morning—that is, on the second day after receipt of the injury—he reported to his M.O., who considered that he had a sprained ankle. Two days later he was admitted to hospital.

Examination upon Admission.—The patient was a well-built young man in good general health. No abnormality was detected other than the local condition in the left foot. The appearances here were interesting. The foot showed a moderate degree of swelling, and on the bases of the four small toes on their dorsal aspect there was slight bruising, mostly on the outer side. A space was palpable over the head of the fourth metatarsal bone and slight crowding together of the third and fifth toes, which slightly overlapped the fourth. Movement of the toes was quite free. On the sole of the foot was a definite swelling, hard, smooth, regular, fixed, round, localized, and tender. It was diagnosed as the head of the fourth metatarsal dislocated plantar-wards. *X*-ray examination confirmed the diagnosis. The condition was irreducible by manipulation, so open operation was decided upon.

Operation.—This was done under gas, oxygen, and ether anaesthesia. The usual skin preparation for a bone operation was carried out and a tourniquet applied. An incision was made parallel to the outer border of the foot, in the line of the metatarsal, centred over the head, and with two-thirds of the incision proximal to the line of the metatarso-phalangeal joint. The deep fascia was incised and the head exposed. It was embraced by the second and third tendons of the flexor digitorum brevis, by the third lumbrical, and by the third tendon of the flexor digitorum longus, and lay superficial to the transverse head of the adductor hallucis. The tendons were gently retracted and the head levered back into the joint. The capsule was rent, but had not contracted enough to prevent this manœuvre being successfully effected. The wound was then closed by a few skin sutures and a firm bandage applied.

Post-operative Period.—This was uneventful. Radiography showed the head to be reduced, and clinically the foot resumed its normal anatomical appearance. Swelling subsided, pain was completely relieved, and the wound healed by first intention. After two weeks the foot was allowed to bear weight, and massage and exercises were carried out on the muscles of the calf and leg. In four weeks recovery was complete, and the patient was discharged to a convalescent depot.

Discussion

The mechanism of this injury is hard to explain, and the patient was not helpful in describing exactly what happened when he slipped. That of course is understandable. It was established, however, that he slipped down two steps and abruptly landed on the ball of the affected foot. He considers that his toes were fully "cocked up" at that time and that he leaned forward to recover his balance. It may be possible that full dorsiflexion of the toes accompanied by violent forward swinging of the body on the fixed foot may slip the head of the metatarsal out of position; but this is improbable, and the explanation is unconvincing.

The other foot was completely normal, and there was no reason to suspect weakness of the transverse ligament of the heads of the metatarsals. In short, the mechanism was not worked out to one's satisfaction, but it is felt that the condition is rare enough to merit being reported.

I am indebted to Dr. Harry J. Rae, superintendent of Oldmill Hospital and Medical Officer of Health for Aberdeen, and to Mr. Andrew Fowler, consultant surgeon to the hospital, for permission to publish this clinical memorandum.

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Reviews

PSYCHONEUROLOGY AND ENDOCRINOLOGY

The 1942 Year Book of Neurology, Psychiatry, and Endocrinology. Neurology, edited by Hans H. Reese, M.D.; Psychiatry, edited by Nolan D. C. Lewis, M.D.; Endocrinology, edited by Elmer L. Sevringhaus, M.D. (Pp. 768.) Chicago: Year Book Publishers.

The Year Book of Neurology, Psychiatry, and Endocrinology continues its useful career in the volume for 1942, though we miss the admirable introductory summaries formerly given by the editor of each section. That on endocrinology has, however, an interesting note on Prof. Magnus-Levy, who, we are glad to learn, after 50 years' work in Germany has now found a safe haven at Yale, where he had his basal metabolic rate repeated at the age of 76, the first record having been made when he was 26. In that interval his energy output per hour had decreased by 17%—rather more than the predicted amount. In a discussion on the indications for termination of pregnancy for mental disorders the interesting conclusion emerges that the death rate for confusional states (generally associated with bodily strains) is 15 to 20%, but that survival nearly always means recovery, whereas schizophrenic patients rarely recover. In the agitated depressions associated with the menopause treatment with diethylstilboestrol was followed by recovery or marked improvement in 48%, which the editor considers rather a disappointing result—but surely it is an advance? This oestrogen, contrasted with hexoestrol and octofollin, shows a higher toxicity, though in suitable doses all three seem decidedly helpful in the menopausal syndrome. Octofollin, however, has no chemical relationship with the natural oestrogens and is relatively active by the mouth. The best point for interruption of the lateral spino-thalamic tract for relief of intractable pain is stated to be just below the trochlear nerve, because the fibres are most superficial in this part of their course. In the diagnosis of brain tumours great stress is laid on the occurrence of isolated convulsive seizures without signs of increased intracranial pressure. In an interesting discussion on aphasia it is stated that it is unwise to lateralize a lesion solely on its presence, and cases are quoted to support this opposition to the conventional Broca view. On more general psychiatric topics we may refer to the statistical evidence supporting the popular idea that the mobile mechanized type of warfare is less damaging to the mental balance than the static trench type.

The whole volume bears witness to active advance in the subjects dealt with despite the unfavourable conditions under which scientific work not directly connected with war is being carried out.

TREATMENT OF FRACTURES

Fractures and Fracture Treatment in Practice. By Kurt Colsen, M.D. (Pp. 147; illustrated. 12s. 6d.) Johannesburg: Witwatersrand University Press. 1942. Obtainable from the Press, Surgery Department, Medical School, Hospital Hill, Johannesburg.

Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. Third edition. (Pp. 1,303; illustrated. 63s.) London: Henry Kimpton. 1942.

The author of the small book on *Fractures and Fracture Treatment in Practice* tells us that it is written for the use of students preparing themselves for qualifying examinations and of practitioners who need a brief review of the subject. It should serve these purposes admirably. Introduced by the professor of surgery at Johannesburg, who writes that Dr. Colsen has for a number of years now conducted the fracture tutorial class in the University of Witwatersrand, the book is a South African product which should export well. It is clearly written, not overloaded with detail, and well punctuated with simple line drawings which clearly depict what it is intended to illustrate. It consists of two parts: the first nine chapters comprise general considerations such as the forces responsible for fracturing bones, the healing of fractures, the general principles of treatment, complications, and pathological factors. The last eighteen chapters give descriptions of special fractures such as of the clavicle, those round the ankle, the face and jaws, ribs and sternum, etc. The book is essentially practical and not too matter-of-fact; thus we were pleased to read under Colles's

fracture that it was first described by Abraham Colles in 1814, and that the fractures at the ankle are historically associated with the names of Pott and Dupuytren. An index completes this excellent little manual.

The third edition of Key and Conwell's book is welcome if only because of the revision of the chapter on compound fractures which has been made necessary by the introduction of the sulphonamides or, as some of our American friends prefer to call them, "the sulfa drugs." This edition, however, includes other extensive changes, particularly in the sections allotted to fractures of the hip and spine and those of the arm and foot, while a new section on war injuries adds further to its value. The make-up is excellent, printing being clear and the illustrations, particularly the reproductions of radiographs, good. The style of the text makes for easy reading and sustains interest. There are many wise comments such as Osgood's statement (p. 342) that "the key that opens the door of diagnosis is suspicion," and (p. 433) "the frequency with which lesions of the intervertebral disk are suspected and found will vary directly with the interest of the examining physician." The discussion of laminectomy in spinal injuries is well balanced, as is also that on another thorny question—operation for suspected dislocation of intervertebral disks. Few will disagree with the conclusion that "patients with low back pain and sciatica should not be subjected to spinograms and intraspinal operations until conservative treatment has failed to relieve their symptoms." Some older surgeons, remembering experiences of the last war, will be interested to read in the section on war surgery that non-irritating vitallium and stainless steel and the sulphonamide drugs have made it possible to use internal fixation in compound fractures with relative safety. For direct implantation in wounds the authors advise a mixture of sulphathiazole and sulphanilamide. This book is full of information and little fault can be found with any of it. The chapter on fractures of the skull and brain injuries is essentially sound and in line with the high standard of the rest of it. It should be more than ever appreciated now that traumatic lesions are so much in front of us. We have the highest praise for it and can thoroughly commend it to surgeons and practitioners everywhere.

MICROBIOLOGY OF CANNED FOODS

Canned Foods: An Introduction to their Microbiology. By J. G. Baumgartner. (Pp. 157; illustrated. 10s. 6d.) London: J. and A. Churchill. 1943.

For many years the popularity of canned foods in this country has been growing, and now in wartime they have become of national importance. Though a great deal of valuable research work has been carried out by the National Canners' Association in the United States and by the Food Manufacturers' Research Association and other bodies in Great Britain, it still remains true that, owing to the numerous variables concerned, control is not always perfect and wastage occurs, sometimes on a relatively large scale. Dr. J. G. Baumgartner, therefore, need make no apology for the admirable little book he has written on the subject of canned foods. As chief bacteriologist to Messrs. Crosse and Blackwell he has had an admirable opportunity of acquainting himself with modern canning practice. The results of his experience and of his wide reading are set down in a series of well-balanced comprehensive chapters dealing with the microbiological aspect of canning in its widest sense. A short introductory chapter on the general properties of bacteria, moulds, and yeasts is followed by a description of the various methods in current practice for controlling spoilage in canned foods. The technique of processing, which differs, of course, according to the type of food in question, together with the principles on which it rests, is dealt with at some length. There is a most informative chapter on the types of microbial spoilage that may be met with resulting from such factors as bacterial growth in the food before processing, under-processing, or infection through leaking seams during cooling. The effect on the cans of faulty technique in processing, such as may follow over-filling, incorrect retort operation, or under-exhausting, is also described. Laboratory workers will derive much benefit from the chapters on the examination of canned foods and of can seams. The book will be of interest and help to medical officers of health, sanitary inspectors, and to public health and industrial bacteriologists. It is packed with useful information and will be found worthy of being placed alongside volumes having a far more pretentious exterior.

Notes on Books

After its first appearance in 1936 Dr. E. NOBLE CHAMBERLAIN'S *Symptoms and Signs in Clinical Medicine* went through a second edition and three reprintings in the course of five years. Now a third edition is published at 30s. by John Wright and Sons of Bristol, to whose courage and enterprise in overcoming difficulties, after repeated destruction of their works, the author pays tribute in his preface. The book remains a very useful introduction to medical diagnosis which should appeal especially to the more advanced student. Its essential clinical character has been carefully preserved, but some additional laboratory and scientific investigations are now included. There is a chapter on radiology by Dr. P. H. Whitaker, and Dr. Norman Capon has again revised his valuable chapter on the examination of sick children. Dr. Noble Chamberlain acknowledges also his debt to a number of other colleagues for constructive criticism and help in revising various sections. Throughout the text there is evidence of careful sifting of data and correction or rearrangement where necessary. The many and well-chosen illustrations are again worthy of praise.

Wise Eating in Wartime is the title of a booklet prepared for the Ministry of Food by the Ministry of Information (H.M. Stationery Office; 4d.). It consists of fifteen broadcast talks for adults by Dr. CHARLES HILL on what to eat and what to avoid, the aim being to underline those dietetic items which give the maximum amount of nourishment. Dr. Hill spoke regularly on the B.B.C. "Kitchen Front" programmes, and two of his earlier series of talks have been published on behalf of the Ministry of Food: *Your Baby's Food in Wartime* and *Wartime Food for Growing Children*. This pamphlet completes the circle. By common consent Dr. Hill is a master of the art of homely talk over the radio. He makes every point tell, and never forgets that the bulk of his listeners are simple folk who are willing to learn but hate patronage or pomposity and like instruction to be given in words they themselves use, with a plentiful spicing of their own kind of humour. The printed version has the authentic ring.

The Ling Physical Education Association (Hamilton House, Bidborough Street, W.C.1) has published a pamphlet (price 2s.) on *The Use of Exercise in the Post-War Rehabilitation of Children in Occupied Countries*. It was written, at the request of the International Women's Service Groups in Great Britain and other organizations which are training volunteers for various branches of relief work in the occupied countries after the war, by two medical women primarily concerned with children's welfare (Dr. Olive Rendel and Dr. Ursula Shelley), and two specialists in physical education (Miss Mary Lace and Miss Bronwen Lloyd-Williams) who are also members of the Chartered Society of Massage and Medical Gymnastics. One of the contributors had experience of the condition of children in Russia during the last war, and another during the Spanish civil war. The pamphlet has been submitted to authorities with knowledge of relief work abroad, and all have agreed that there is need for advice on the subject, because too much stress cannot be laid on the value of exercises, games, and entertainment for these children when they are released from the enemy's grip and properly nourished. Starving children must first be fed. Next they must be restored to health by every means in human power. Rest and relaxation and well-planned physical education can help in this.

The Medical Officer to the Midlothian Battalion, Home Guard, has written a small, pocket-size booklet entitled *You and Your Comrades*, which gives in 31 pages practical hints on first-aid treatment. The author has borne in mind the special circumstances likely to apply if and when the Home Guard goes into action. The "first field dressing," he says, must always be carried in the special pocket for it at the top of the right trouser leg. This consists of two separate gauze pads attached to 2½ yards of bandage, each pad wrapped in a white waxed cloth cover. Instructions are given for its use, and also on the treatment of shock, haemorrhage, fractures, wounds, and unconsciousness. Extreme caution is urged in assuming that a man is actually dead. "His breathing and pulse may have stopped and he may be lying limp and inert, and yet often it may happen that life can be restored." Company commanders are advised to provide for two medical orderlies and eight stretcher-bearers for every 100 men, as there is scant chance at the moment of a medical officer being in the field. The booklet is published by E. & S. Livingstone, 16, Teviot Place, Edinburgh, at 4d. a copy.

THE NUTRITIONAL STATE OF STAFF IN A LONDON SECTOR HOSPITAL

BY

HELEN PAYLING WRIGHT

WITH THE TECHNICAL ASSISTANCE OF

J. L. HOSKINS

The following observations upon the nutrition of 22 probationer nurses at a large London teaching hospital evacuated to the country may be of interest. They were made during the first three months of 1943, a time of year at which green vegetables are scarce and fresh fruit unobtainable. The subjects took all their meals in the institution, having no additions to their diet except occasional buns and sweets. The findings on a small group of laboratory staff at the same hospital who received home-prepared diets with full civilian rations are included for comparison. The results for the two groups are given in the following table:

		Vitamin C Excretion in mg.			Urea g. per 24 hrs.	Serum Protein %	R.B.C. in Mills.	Hb%
		Initial Level	After 250 mg. Once	After 250 mg. Daily				
Nurses	Means	13	26	88	17	6·6	4·85	88
	Coeff. of variation	34	106	56	23	9	7	9
Laboratory staff	Means	21	83	141	26	6·8	5·16	102
	Coeff. of variation	13	51	61	20	6	1	3

Blood Findings.—In no instance was the red cell count below the lower limit of normality for women (4.28 mills., Price-Jones *et al.*, 1931). The haemoglobin, determined by the Haldane method with apparatus conforming to the B.S.I. standard, gave an average of 88%, which falls below the lower limit of normality (90%, Price-Jones *et al.*), and much below the mean for healthy women of comparable ages (98%). The present findings correspond closely with those of Wills and her colleagues (1942) for a similar group of nurses. Although the degree of anaemia was never gross it might have accounted for the greater sense of fatigue experienced by the more anaemic subjects. It also showed that their iron intake was probably insufficient for this group of young women. The blood findings for the second group were more satisfactory, even allowing for the fact that five of the six subjects were men, and no sign of iron deficiency was present in any of them.

Vitamin C.—Excretion of this vitamin was determined by the method of Harris and Ray (1935). The urine passed during a period of 24 hours was tested as follows. The volume of each voidance was measured, and a 10 c.cm. sample transferred to a bottle containing 2 c.cm. of glacial acetic acid. These samples were collected four times daily, so that estimates could be carried out promptly. The vitamin C excretion was determined on three occasions for each subject: (i) on customary diet; (ii) after one dose of 500 mg. of ascorbic acid given 8 hours previously; (iii) after 250 mg. taken daily for seven days. The initial figures showed that the vitamin C level of all the subjects was low (see Harris and Ray, 1935), though none complained of any symptoms ascribable to this deficiency. After one large dose of ascorbic acid the average excretion rose to within normal limits. The rise in the average was, however, deceptive, as can be seen from the large coefficient of variation; a few subjects responded markedly, while 11 failed to improve appreciably. After treatment for seven days a satisfactory level was reached by all except one, who possibly failed to take the tablets regularly. It may therefore be concluded that the diet taken by these nurses was deficient in vitamin C. Several of them volunteered the statement that they felt better and "more alive" after receiving the ascorbic acid for a week. The results for the group of laboratory workers showed a consistently better rate of excretion. Initially all fell within the lower limit of normality, and after the ascorbic acid supplements their excretion rate rose higher than that of the other group. This shows that their original diets contained a larger amount of this substance.

Urea Excretion.—The estimations of urinary urea were performed on 24-hour samples as a guide to the protein content of the diets. Calculated on the assumption that urea excretion × 2.9 = protein intake, and neglecting the small loss of nitrogen in the stools, etc., it appears that this group of nurses were receiving about 50 g. of protein daily. This is probably too low an intake (see Gaunt, 1943), especially as a considerable proportion was of vegetable origin and consequently low in certain essential amino-acids. The urea excretion for the second group was considerably higher, the calculated daily protein consumption being 76 g., which should be adequate even though low in animal proteins.

Serum Proteins.—These were estimated by a nesslerization method. In one nurse only (in whom it was 5.8 g. %) was the serum protein below the lower limit of normality. The relatively high level of serum proteins was not unexpected, for with low-protein diets but without starvation they appear to be sustained at the expense of other body proteins.

REFERENCES

Gaunt, W. E. (1943). *Chemistry and Industry*, **42**, 127.
Harris, L. J., and Ray, S. N. (1935). *Lancet*, **1**, 71.
Price-Jones, C., Dill, D. B., and Wright, G. P. (1931). *J. Path. Bact.*, **34**, 779.
Wills, L., Mackay, H. M. M., Bingham, K., and Dobbs, R. H. (1942). *J. Hyg.*, Camb., **42**, 505.

MEDICAL SICKNESS AND LIFE ASSURANCE

The annual meeting of the Medical Sickness, Annuity and Life Assurance Society, Ltd., was held on June 28, Mr. R. J. McNeill Love, F.R.C.S., Chairman of Directors, presiding.

The Chairman said that the new business in the Life Assurance Fund had increased from £141,188 to £267,303, and the total of this Fund now stood at over one and a half millions. All policies for life assurance effected since the outbreak of war bore an exclusion agreed upon by the Life Offices Association that in claims directly or indirectly due to the war the sum assured should not be paid, but the premiums should be returned. The words "indirectly due to war," however, had opened up such a wide field of conjecture and discussion that the directors of the Society had decided in principle that claims directly due to enemy action should follow the exclusion, but that all other claims should be paid in full so far as the funds of the Society allowed.

In the Sickness Fund the premiums were slightly higher, and, the year having been moderately healthy, there was only a very slight increase in claims. The funds of the Society had increased by £222,921, and now stood at £2,578,239, which was one and a half millions more than at the time of the Society's jubilee in 1934. The holding in British Government securities, which represented 36% of the total investments, had increased during the year to £955,904. All new money and redemptions were invested in 3% Savings Bonds.

In a reference to the important discussions now taking place on the Beveridge Report, the Chairman said that the proposed abolition of private practice as at present carried out, and the transformation of doctors from the complete freedom they had always enjoyed to the restricted activities of salaried civil servants, opened up a startling prospect. What was to happen to the capital of thousands of doctors which had been invested in the purchase of a practice or a share in a partnership? Members might be assured that the Board was closely following the discussions now taking place so far as the interests of its members were concerned. He ended with an appreciation of the services of the manager and secretary, Mr. Bertram Sutton, and staff.

At a recent meeting of the Association of Industrial Medical Officers Mr. J. L. Smyth, whose work has brought him into contact with industrial doctors, spoke on the education of the industrial medical officer. He said that the doctor in industry must bring to his work a wide knowledge of people, of processes, and of the substances used in various industries, a knowledge which ought to be acquired before he began his work in the factory. It was the doctor's province to see that the human machinery was properly cared for. He should spend time in the works rather than wait for patients to come to him. It was his duty to interpret and bring to the notice of the management the latest results of research in industrial hygiene. A works doctor should not hold the position of referee for the local county court. Dr. Frank Gray spoke on the co-operation between the general practitioner and the industrial medical officer. He said it was important that continuity of treatment should be secured. Industrial medical officers had special knowledge of factory conditions and their effects on health and of the patient as a factory worker, while the general practitioner understood the patient's home circumstances, his family, his diet, his clothing, and, even in wartime, the conditions of life of more than half his day. The Ethical Rules for Industrial Medical Officers drawn up by the B.M.A. were an excellent basis for the co-operation between the two. It was intended that the letter of these rules should not be too rigidly adhered to; it was the spirit behind them that mattered.

HOSPITAL MEALS

A conference on hospital meals, arranged by the Food Education Society, attracted a gathering which packed the theatre of the London School of Hygiene and Tropical Medicine. Mr. ERNEST BROWN, Minister of Health, who presided, said that every hospital of over 100 beds ought to employ a dietitian. When such a person was employed there was a notable improvement in both the nutritive value and the tastiness of meals. He had arranged with the Minister of Labour and National Service that students taking a diploma in dietetics should not be called up until the end of their training. Officers of the Ministry, knowledgeable in kitchen management, continually visited E.M.S. hospitals, and the response of these institutions to his exhortations had been gratifying. Further, there was hardly a hospital which had not since the outbreak of war appreciably reduced the amount of edible food wasted. One hospital during a recent three months had increased its potato consumption by 40% and decreased its bread consumption by 20%.

Lord HORDER, president of the society, said that in this country we were by no means behind Europe and America in dietetics. With the attention now paid in communal restaurants and factory and school canteens to variety and attractiveness in food it would be an anomaly if it were found in any large hospitals that very little had been done to vary the monotony of the meals. But there was always scope for the exercise of more imagination and for new techniques in preparation and service. Sir ALFRED WEBB-JOHNSON, P.R.C.S., said that dietitians should have control not only of their own special kitchens but of the general hospital kitchen as well. It was quite possible to reconcile needs, tastes, and provision, but the problem of food was in some ways more difficult than it had been to an earlier generation, which had a plentiful supply of natural foods. The place of these had to some extent been taken by artificial preparations, the manufacturers of which, to make them attractive, had in some cases deprived them of vital constituents.

Navy and Army Rations

Surg. Vice-Adml. Sir SHELDON DUDLEY, M.D.G. of the Navy, spoke on the sailor's diet in general. The one-time invariable meal of roast beef and plum duff had now given place to a more varied menu. He believed that the sailor's dislike of greenstuff was due to overfeeding in the naval training establishments. In the naval hospitals there were expert dietitians for special diets—eggs, chicken, and fish. No doubt a good many substitutes had now to be used, but care was taken that cooks were well trained and able to select their dishes and garnish them attractively. The Navy did not approve of synthetic vitamins in hospital diets, and the necessary supplements were made with black-currant purée and the like. Special cupboards and trolleys kept the food hot, and continual supervision of the kitchen ensured that it was not over-cooked. He made some civilian mouths water by giving the menu in naval establishments for that particular day: Breakfast: porridge, haddock; dinner: liver and bacon, potato and cabbage, ginger pudding, sauce; tea: bread-and-butter and jam; supper: meat roll, sauce, potatoes. In addition: 1/2 lb. bread, 1 oz. butter (not margarine), 1½ oz. sugar (plus 1/2 oz. to the galley for cooking), 1/2 pint milk, and 2/7 oz. tea.

Lieut.-Gen. Sir ALEXANDER HOOD, D.G.A.M.S., said that the soldier when he went into hospital did not as a rule suffer much impairment of appetite. As an example of the variety of rations issued in the Army with its troops from many quarters of the world he mentioned that in the Middle East the rations were of 35 different types. British soldiers were conservative in their eating habits; it took them a long time to get accustomed to salads, but a few years ago in the Sudan he found a regiment enjoying omelettes and salads at midday and reserving their heavy meal for the evening. Local resources in the Western Desert were not plentiful, but no Army in the history of war had been better fed than the Eighth, and he had never seen a finer-looking set of men. There were four basic types of diet in hospital: ordinary, milk, chicken, and fish; but every hospital carried large supplies of extras such as jellies, powdered soups, and dried vegetables, and from these there were very few diets that Army cooks could not turn out reasonably well. It was only those who had been in West Africa, where potatoes would not grow, who knew how the men looked forward to dehydrated vegetables which, thanks to their nutritionists, were being sent out.

Dietetic Deficiencies

Dr. GEORGE GRAHAM said that during the war he had seen six cases of scurvy, one of them in a soldier. But the people who got scurvy nowadays were usually either old men who did their own cooking or women who lived on freak diets. Vegetables were often not looked at because badly cooked, but there had been a change in this respect during the war. It might be said that if vegetables looked nice when served they were probably nutritious also. Another thing which had been learned was that cabbages, lettuce, and the like which had been cut for any length of time tended to lose vitamin C. Hospital food should be taken to the laboratory periodically, and if there was vitamin deficiency the kitchen arrangements should be investigated. Sir BERNARD DOCKER, president of the British Hospitals Association, considered that, taken by and large, the charge of poor feeding levelled against hospitals could no longer be sustained. Where a patient required a special diet which was the subject of a medical prescription it was necessary only for the doctor's orders to be observed, but in many cases the doctor ordered only a "light diet," and this made it necessary for somebody to use discretion. He also referred to nurses' diet and the recommendation of the Rushcliffe Committee on the desirability of hospital housekeepers, whether nurses or not, being properly trained in dietetics.

Finally, Dr. W. A. LETHEM of the Ministry of Health referred to the booklet *Wartime Feeding in Hospitals*, published by the Ministry, and described the close collaboration of the Department with the hospital authorities on this matter of meals. The Ministry did not encourage the general consumption of synthetic vitamins by people who were or should be in a position to obtain a properly balanced diet.

BEIT MEMORIAL FELLOWSHIPS

The Trustees of the Beit Memorial Fellowships for Medical Research, in their report for 1942-3, note with pleasure the election this year again, as in 1942, of 3 past Fellows to the Fellowship of the Royal Society—namely, I. de Burgh Daly (Fellow, 1920-3), W. G. Penfield (1921), and S. Zuckerman (1934-7). Out of the 25 present Fellows there are now 16 seconded for whole-time war work.

The following elections have been made, with permission for each Fellow to be seconded at any time for war duties:

4th Year Fellowships (£500 a year).—J. J. D. King, L.D.S., Ph.D., to continue his studies of dental caries and parodontal disease, at the Nutritional Laboratory of the Medical Research Council, London, N.W. P. C. Williams, B.Sc., to continue his studies of natural and synthetic oestrogens, at the Courtauld Institute of Biochemistry, Middlesex Hospital, London University.

Junior Fellowships (£400 a year).—Margery E. M. Cutting, B.Sc., to study the physiological metabolism of organs in infancy, at the Department of Medicine, Cambridge University. A. Kleczkowski, M.D., Ph.D., to study serological reactions in reference to size and shape of antigen and antibody particles, at the Rothamsted Experimental Station, Hertfordshire. G. J. Popjak, M.D., for experimental study of fatty and degenerative changes in the kidney, at St. Thomas's Hospital Medical School, London University. Ethel G. Teece, B.Sc., Ph.D., to study the chemical structure of Gram-positive and negative micro-organisms and to develop antibacterial agents, at the Department of Chemistry, Birmingham University.

HOME SERVICE AMBULANCES

"Even in the middle of war, when all else is subservient to the demands of the Services . . . the needs of the ordinary civilian invalid must be met." This is the opening note of the annual report of the Home Service Ambulance Committee of the Joint Council of the Order of St. John and the British Red Cross Society, and it then shows how this work has been done. During the twelve months ended Dec. 31, 1942, patients carried numbered 248,689, bringing the total since the start of the service to 2,875,794. The total number of ambulance stations equipped by the committee is 132, and there are 379 affiliated stations. The linking up of ambulance stations throughout the country had very great advantages before the war, but these have become more marked with the need for strict economy in the use of man-power, petrol, and transport generally. The committee has continued the arrangement made with the Ministry of Health at the beginning of the war providing mobile *x*-ray facilities through E.M.S. hospitals in the Greater London area. A twin-unit technique has been developed for orthopaedic work under operating-theatre conditions.

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THE GOVERNMENT'S MILK POLICY

The rationalization of retail distribution of milk, though resulting in economies in transport and man-power, has in itself created a problem which touches public health very closely. Consumers who previously bought pasteurized milk may now be compelled to accept raw milk, and those who sought to protect their children against tuberculosis of bovine origin by buying tuberculin-tested milk may now be supplied with ungraded milk. Having in the national interest deprived the consumers of their freedom of choice of milk vendor, the Government now feels obliged to ensure that in those areas in which rationalization has been introduced some control at least should be exercised over the quality of the milk supplied. In the White Paper on Milk Policy recently issued the Government proposes to schedule areas in which it will be an offence to sell milk retail unless it is (1) heat-treated as defined by Order, (2) lawfully sold as T.T. milk, or (3) "accredited milk" sold by a retailer who sells the milk of a single accredited herd. The number and size of the areas to be scheduled will presumably depend to a large extent on the availability of pasteurizing plant. In areas of population exceeding 10,000, dairymen are being encouraged to make plans for organizing the heat treatment of milk. Where satisfactory arrangements cannot be made by the trade itself, local authorities will be enabled to install and operate pasteurizing plant. As was advocated in this *Journal* many years ago, the policy is to be adopted of transferring to the Ministry of Agriculture and Fisheries the functions of local authorities relating to the conditions under which milk is produced on the farm. Responsibility for the protection of milk against infection and contamination during transport and distribution will remain with local authorities. This means, in effect, that the agricultural authorities will supervise the production, and sanitary authorities the distribution, of milk. Further, the Government proposes to stimulate the T.T. milk industry by paying a premium of 4d. a gallon direct to the producer and arranging for T.T. milk to be sold to the public at a price only slightly in excess of that for ordinary milk.

Taken together, these proposals constitute a step in advance, though only a small one. They clearly represent a compromise between the Ministry of Health, the Ministry of Food, the Ministry of Agriculture and Fisheries, the National Farmers' Union, and the Milk Marketing Board. The establishment of scheduled areas in which, apart from certain classes of raw milk, only heat-treated milk may be sold, is of importance in showing that, within limits, the Government approves the principle of compulsory pasteurization. Though many medical men are of the opinion that T.T. milk should be pasteurized in order to render it free from the risk of carrying other diseases than tuberculosis, few will grumble at its being permitted to be sold raw in scheduled areas. What everyone, however, who understands the present system of milk designations will regret is that "accredited milk" should be classed along with heat-treated and T.T. milk. Accredited milk is produced under conditions that do not ensure its safety for the consumer, even in respect of tuberculosis. The animals in the herd are submitted to a clinical inspection by a veterinary surgeon four times a year; but, as experience has shown, the veterinary inspector can no more diagnose early tuberculosis of the udder by palpation than a doctor can diagnose early tuberculosis of the lung by auscultation. Bacteriological examination of the milk is as necessary for the one as radiological examination is necessary for the other. But bacteriological examination of accredited milk is restricted to tests for cleanliness; there are no tests for tuberculosis. It is therefore not surprising that, judged by the examination of milk coming into London in 1937, accredited milk is found to contain tubercle bacilli almost as often as ungraded milk. The term "accredited" is a misnomer and conveys to the general public a suggestion of safety which the milk that bears the name is far from possessing. Dr. Esther Carling has performed a public service in pointing this out in her letter to the *Times* of July 19. If the Government cannot be induced to withdraw accredited milk from the list of those to be sold in scheduled areas—and presumably opposition from the farmers will prevent it from doing so—pressure should at least be brought to bear on it to enable local authorities to stop the sale of any milk found to be infected with tubercle bacilli until the offending animal or animals have been removed from the herd. Anomalous though it may seem, tuberculous meat, which would normally be cooked, can be condemned under present sanitary law, whereas tuberculous milk, which is often consumed raw, cannot. If arrangements were made for accredited milk found to contain tubercle bacilli to be temporarily diverted to a pasteurizing plant, then some at least of the damage that it might cause would be avoided. This should not be difficult, because the Government expressly states that there will be no added cost to the producer-retailer in submitting his milk to heat treatment; and that by so doing he will run no risk of losing his customers to larger organizations, as all customers are registered with particular suppliers and no change is possible without the approval of the Ministry of Food. Incidentally, the effect of stopping infected accredited milk from being sold would probably be to encourage producers to go in for T.T. milk or for pasteurization. If raw accredited milk is undesirable for the general public in scheduled areas, it is equally undesirable for school children. Yet the White Paper states that every effort will be made to provide all schools with heat-treated milk, T.T. milk, or milk exclusively from single accredited herds. Again, this last class of milk should be withdrawn. If neither heat-treated nor T.T. milk is available, then the children should be provided with dried milk, preferably flavoured with chocolate.

To most readers of this *Journal* the Government's policy will prove disappointing. It must be remembered, however, that public opinion on the milk problem in this country still remains unstirred. We have grown so accustomed to milk of poor keeping quality, to milk that is often infected with tubercle or *abortus* bacilli, to milk that from time to time becomes adventitiously contaminated with pathogenic organisms of human or other origin, that figures of milk-borne disease no longer have the power to move us. When we think of what milk could be like, and then realize what it is like, we cannot help but be appalled by the extent of popular apathy. Is it surprising that the troops coming from the United States, where so much has been done to furnish a clean, safe milk to the human population, are not allowed to be provided officially with liquid milk in this country? Until we ourselves can look at our milk supply as the Americans look at it, until we educate the public to demand safe milk and to go on demanding it, and until we insist that the health policy of this country shall be dictated by doctors and not by farmers, can we blame the Government if its forward step in milk legislation is but the step of a timid, halting child?

HEALTH AND SOCIAL MEDICINE

A few weeks ago the argument was advanced in these columns that before external authority makes any attempt to regiment or even to reorganize our profession the people of this country should be guaranteed the basic necessaries of life in terms of food, housing, clothing, and recreation in return for honest work, with the safeguard against interruption of income which lies at the root of the Beveridge plan. The fact that poverty and bad environment undermine health of body and mind is so widely acknowledged as to be a commonplace of social philosophy. What lacks equal recognition by many who have an itch to construct health programmes is the need for a long-term policy to protect the individual and the community against forces that hamper the full development and maintenance of man's mental and physical capacity. Such a policy was outlined last year by Sir Farquhar Buzzard in a paper on the place of social medicine in the reorganization of health services.[1] Its chief aim, he held, would be to expose the sources and bases whence arise ill-health and disability by investigating the social, genetic, environmental, and domestic factors that affect the incidence of human disease. A second and equally important aim would be to search for and promote protective measures other than those usually employed in remedial medicine. Sir Farquhar argued that the first step forward to the goal was the setting up of professorial departments or institutions of social medicine in close association with hospitals and having a fourfold purpose: (1) To foster research; (2) to reorientate the aims of the medical curriculum in such a direction that the doctor of the future will be trained not only to fight disease but to be an architect of personal and public health; (3) to organize postgraduate training in social medicine; (4) to co-ordinate and guide the activities of social and health services already established or to be established in the future. Hard on the heels of that pronouncement came news that the University of Oxford, with moral and financial support from the Nuffield Provincial Hospitals Trust, had resolved to establish an institute and professorship of social medicine, whose purpose would follow closely the lines indicated by the then Regius Professor of Medicine. Action followed decision, and the first holder of the chair, Prof. John A. Ryle, is already working in Oxford at the nascent Institute of Social Medicine.

Recent letters to the *Times* by the two men most closely concerned with Oxford's new departure have brought its aims before a wide public and related them to a topic of the day—that is, to a comprehensive health service according to the Beveridge report. Sir Farquhar Buzzard, writing in the *Times* of July 21, invited attention to broader considerations than such controversial topics as salaried medical service, free choice of doctors, the preservation of the voluntary hospitals system, and changes in the constitution and areas of local government. He recalled that the aim of a comprehensive health service, according to Sir William Beveridge, is to produce and maintain a nation so healthy that it is capable of maximum production, thereby becoming both prosperous and contented. An obstacle now interfering with that objective is the fact that there are not nearly enough doctors to carry out the threefold duties of promoting health, of preventing disease, and of curing the sick. Doctors, Sir Farquhar says, "simply have not the time necessary to do their job with satisfaction either to the community or to themselves. There are two obvious methods of dealing with this difficulty. The number of doctors must be increased, or their work decreased. The first alternative is a melancholy and defeatist policy; the second deserves more careful investigation than it has yet received." It is indeed true that the doctor's time is mostly taken up with minor disorders of health, physical and mental, which though disabling are preventable. No less true is it that their origins are plain for those who have eyes to see. "Staring us in the face is a low and inadequate standard of living caused by bad housing, imperfect supply of air, light, space, and water, ignorance in regard to hygiene, food, and drink, evasion of the problems presented by sex and heredity, lack of leisure and recreation, and last, but by no means least, the prevalence of dirt and dirty habits. Turning to the mental side, equally obvious are lack of social security and all the nervous strains and anxieties directly due to this and to the physical and environmental factors already mentioned." The question thus clearly posed is whether to attack the sources of ill-health or to continue indefinitely content with treating and rehabilitating the unhealthy. Developing his plea for joint and co-ordinated efforts in preventive and social medicine, Sir Farquhar pointed out that the training and qualifying of the requisite number of doctors to deal adequately with the present ill-health of the nation would take ten to twenty years at least; but meanwhile the volume of ill-health might be so greatly reduced by improvement of social conditions that the larger number of doctors might well be superfluous. He ended with these significant words: "We should welcome an improved and comprehensive health service, but only if associated with the pledge of the Government to eradicate as far as is possible the more obvious causes of ill-health."

Prof. John Ryle's letter in the *Times* of July 24 was written to supplement Sir Farquhar Buzzard's advice from the point of view of one whose ideas are in close accord with his. "The majority of doctors have been compelled to the belief that their first function is the treatment of disease or injury and not the maintenance of, or education for, health. Medical students are still largely bred in this belief; they learn little of the foundations, meaning, or measurement of health, and rarely examine a healthy subject. The public for the most part think of the doctor as someone to consult in times of sickness only." Acknowledging the wonderful achievements of the environmental health services, Prof. Ryle had to note that latterly even these preventive services have been compelled by the great mass of our infirmities to take over more and more of the treatment of developed disease, and except in four or five directions they still have relatively small powers for contributing to constructive programmes of social medicine and hygiene. "If examination for health and if training, feeding, housing, and education for health in the armed Forces in wartime are necessary for national defence and survival, surely they must come to be regarded as equally necessary for national efficiency and survival in time of peace. Employer and employee, equally with the High Command and the rank and file, must learn the mutual benefits which can accrue from that health or 'wholeness' (in a bodily, mental, and moral regard) which is a possible goal, and must in time become our first economy." And so the two letters from Oxford converge to the point with which we began, and reinforce our view by weighty reasoning.

[1] *British Medical Journal*, 1942, 1, 703.

DEATH OF THE PRESIDENT

Members of the British Medical Association will learn with deep regret that our President, Sir Beckwith Whitehouse, M.S., F.R.C.S., after attending the meeting of Council at B.M.A. House on July 28, had a heart attack when beginning his journey home and died soon afterwards in University College Hospital, London. Sir Beckwith, who was in his 61st year, had had a most distinguished career and was professor of midwifery and diseases of women in the University of Birmingham, and gynaecological surgeon to the General and Queen Elizabeth Hospitals, Birmingham. He was an Honorary Member of the Canadian Medical Association and an Honorary Fellow of the American College of Surgeons. He joined the British Medical Association soon after graduation and was honorary secretary, vice-president, and (in 1936) president of the Section of Obstetrics and Gynaecology. The Birmingham Branch made him its president for 1934-5. At the Aberdeen Meeting of the B.M.A. in 1939 Sir Beckwith Whitehouse was appointed President-elect, and but for the war he would have presided over the Association at Birmingham in 1940. He succeeded Dr. Thomas Fraser in the presidential chair in 1942, and the Council at its recent meeting unanimously and with acclamation resolved to recommend to the Representative Body his re-election for the year 1943-4. On behalf of all our fellow members we offer sympathy to Lady Whitehouse and her children in their sudden bereavement. A memoir, with portrait, will appear in next week's *Journal*.

THE NATURE OF INFLUENZA VIRUS

The question of size has always assumed great importance in discussions on the nature of viruses. Larger members like the viruses of vaccinia and psittacosis are almost universally accepted as small living parasites, akin to the bacteria, and their sizes present no obstacle to a structural complexity sufficient for their metabolic activities and adaptative mutations. Indeed, Rivers and his co-workers have shown that the elementary bodies of vaccinia contain, in addition to protein, fat, carbohydrate, and copper, a growth-promoting factor which is probably biotin, and there is good evidence that they multiply like the bacteria by simple binary fission.

Until recently influenza virus was generally considered to belong to this large-size group, its particle diameter being accepted as approximately 100 mμ. Recent papers by Chambers *et al.*,[1 2] however, present convincing evidence that the virus unit has a diameter of only about 10 mμ and a molecular weight of less than 1,000,000; this would place it among the very smallest of the known viruses, the sizes of which are comparable with large protein molecules. Moreover, their preliminary studies have indicated that the virus protein is no more complicated, chemically, than the infectious agent of tobacco mosaic, which Stanley[3] showed could be isolated in paracrystalline form. Since Stanley's pioneer work many plant viruses have been crystallized as true three-dimensional crystals, and there is now little doubt that they are chemically pure protein substances. But so long as the animal viruses resist all attempts to obtain them in crystalline form it is perhaps legitimate to consider them of fundamentally different nature from the plant viruses. It may be significant, however, that the infective agent of poliomyelitis, with an estimated particle diameter of about 12 mμ, is considered by some workers to be a non-living protein which can be repeatedly precipitated without loss of infectivity. Whether influenza virus belongs to this group of infectious chemical agents remains to be determined: it is certainly difficult to imagine a chemical substance possessing its powers of adaptation and its antigenic mutability.

One of the greatest mysteries in the epidemiology of influenza is the mechanism whereby the virus survives through long interepidemic periods. Andrewes[4] postulated a basic non-pathogenic virus, harboured by normal human carriers, which might under favourable conditions evolve through several grades of increasing antigenic complexity and pathogenicity. Recent work by Shope[5 6] on swine influenza points to another interesting possibility. His experiments indicate that the lung worms which commonly infest pigs serve as an intermediate host for the virus, not only while they remain in the pig's lungs but throughout the excretion of their ova and their development through larval stages in the earthworm. The ingestion of earthworms by swine completes the cycle. As earthworms may remain infective up to 32 months, survival of virus from one epidemic to another becomes readily understandable. The most interesting feature of Shope's work, however, is the demonstration that virus, while in the lung worm, whether adult in the pig or larval in the earthworm, exists in a masked form; it is totally non-infective until awakened to activity by some provoking stimulus. Shope thinks that the onset of a swine epizootic is determined, not by the acquisition of the causative virus, but by meteorological or physical conditions which favour virus activation. Although a similar mechanism in human beings seems unlikely, it would be unwise to ignore the possibility. Human epidemics, like swine epizootics, usually occur during a particular season of the year, and epidemic foci often arise simultaneously and apparently independently, suggesting some activation of previously acquired infection rather than direct case-to-case transmission. Much further knowledge of the epidemiology of the disease as well as of the chemical and physical properties of the causative agent is required for a fuller understanding of the nature of influenza virus.

PLANT HORMONES

The concept that specific chemical substances secreted in small amounts by certain organs in the body exercise a profound influence on the growth and shape of the animal form has provided a fascinating chapter in the book of human knowledge. In the last ten or fifteen years, however, an equally fascinating supplement to that chapter has been written, for the growth and form of plants have also been shown to be controlled by specific chemical substances. These plant "hormones" are known as "auxins" (from a Greek word meaning "to grow"), and of them Went and Thimann[7] have stated "that the auxins play a protean role in the development of plants, and influence a large number of processes both normal and pathological." Though the occurrence of plant hormones has only been securely established in the last ten years or so, Boysen-Jensen[8] as long ago as 1910 found that, if he cut the tips off *Avena* (oat) coleoptiles and stuck them on again with gelatin and then illuminated only the tips, the tip *and* the base of the coleoptile curved towards the light. Thus under the influence of light a substance was being produced in the tip which was capable of diffusing through the rest of the coleoptile. This diffusible substance was

1 *J. exp. Med.*, 1943, **77**, 251.
2 Ibid., p. 265.
3 *Science*, 1935, **81**, 644.
4 *Proc. roy Soc. Med.*, 1942, **36**, 1.
5 *J. exp. Med.*, 1943, **77**, 111.
6 Ibid., p. 127.
7 *Phytohormones*, 1937, The Macmillan Company, New York.
8 *Ber. d. bot. Ges.*, 1910, **28**, 118.

obtained from coleoptile tips by Went[9] [10] in 1926 and 1928. The chemical investigation of this substance was later carried out by Kögl and his collaborators in the years following its isolation by Went. A number of growth-inducing substances have since been obtained from plants. They have all been described as auxins. Eventually all auxins were classified as either auxin "a" or auxin "b." The first was given the chemical name of auxin triolic acid, and the latter was called auxenolonic acid. They both consist essentially of a 5-carbon ring including a double bond and carrying two or three side chains. In 1934 Kögl[11] isolated indole-3-acetic acid (hetero-auxin) from urine, and it was found to have a strong growth-stimulating effect in plants. Since then many related chemical substances—naphthalene acetic acid, indole butyric acid, etc.—have been found to have a growth-stimulating function in plants. It is noteworthy, however, that they stimulate growth by causing cell elongation, not cell division. This group of substances is particularly active in stimulating root growth. Mixed with lanolin and rubbed on to a plant they will cause roots to grow on the leaves or stem of a plant or even on the petals of a flower. Such substances are obviously of great value in persuading recalcitrant cuttings to "strike"—e.g., those of the yew, holly, and lemon. Spraying the unpollinated flowers of various fruits with some of these substances causes the fruits to develop without seeds. Seedless tomatoes have been one of the interesting and palatable results of these experiments.

One of the most surprising things about the auxins is their wide occurrence in animal tissues. They are present also in the excretions of the body—in saliva and urine. In the latter there is so much present that human urine has been used for the extraction of pure auxins. Since auxin is a growth-promoting substance it is not surprising that attempts were made to see if it was present in tumours. Extracts of mouse carcinomata, however, proved to be negative. It was observed to have no effect on the growth of tissue cultures, but embryonic extract was found to be rich in it. Auxin increases in amount in the hen's egg during development. This extraordinary parallelism between growth and auxin content is of great interest, but there is no direct or indirect evidence that growth of animal cells is in any way affected by the auxins.

THE SITE OF PARATHYROID ACTION

Does the parathyroid hormone act directly on the bones or does it primarily affect the kidneys? The question is still unsettled. Convincing evidence for both theories has been brought forward in the past, and it is typical of this problem that two recent investigations have led to opposite conclusions. Selye[12] still adheres to the older view—that the parathyroid hormone acts primarily on bone. In his experiments he injected 60 to 100 U.S.P. units of parathyroid hormone into rats 18 to 27 hours after nephrectomy. The animals were killed 32 to 36 hours after the operation, and even in this short time there was histological evidence of osteoclastic absorption of bone. There was, however, no calcification of the soft tissues, apart from calcium deposits detected histologically in the renal tubules of unoperated control rats: this is evidence that calcification of the soft tissues is a secondary action shown only when the kidney cannot excrete all the calcium and phosphate liberated from bone. Similar but much slower osseous absorption was produced by nephrectomy itself. Selye was able to show that this was probably due to a stimulation of the parathyroid glands, because it did not occur when they were removed at the same time as the kidneys. All in all, these experiments show that the parathyroid hormone acts on the bone, and that the kidney exerts only a regulatory effect, probably depending on the calcium or phosphate concentration in the blood.

The upholders of the renal theory emphasize the fact that when parathyroid injections are given the first sign is an increased excretion of phosphate and a lowering of blood phosphate, and that these effects always precede the rise in serum calcium. Collip, who was formerly an upholder of the bone theory of parathyroid action, has recently swung over to the renal theory. Neufeld and he[13] have shown that parathyroid extracts will not cause a rise in serum calcium in rats, cats, or dogs in which the excretion of urine is prevented either by removal of the kidneys or by ligating the renal vessels or ureters. In the rats thus treated the normal fall in blood phosphate after parathyroid injection was transformed into a large rise. Confirmatory evidence of the renal site of action was the fact that the rise in calcium and fall in phosphate in the blood after parathyroid treatment in dogs were prevented when posterior pituitary extract was given in large enough amounts to cause anuria, and that in a cat with exteriorized ligated ureters the normal response to parathyroid injections was restored by cutting the ligatures. The rise in serum calcium may be prevented in normal dogs if sodium acid phosphate is given intravenously at a rate that maintains a constant blood phosphate level, which shows that phosphate rather than calcium metabolism is primarily affected. It is noteworthy that Neufeld and Collip did not study the bone histology of their animals, nor did Selye investigate the calcium or phosphorus metabolism of his rats. Finally, to add to the confusion, Fay, Behrmann, and Buck[14] have reported their failure to demonstrate any effect of parathyroidectomy or parathyroid injections on urinary phosphate or creatinine clearance in dogs.

MEDICINE IN THE FRENCH COLONIES

Through the ages in all countries medical science has struggled for advancement to make the world a better, safer place for man to dwell in. Many medical men have been leaders in the resistance to Germany in the countries she has overrun in Europe. Our Polish allies have organized their medical school in Scotland, with their own medical journal. Now we read, with pleasure and admiration for those Free Frenchmen carrying on the struggle, the first number of the *Revue des Sciences Médicales, Pharmaceutiques et Vétérinaires de l'Afrique Française Libre* from Brazzaville, with an introduction by the Director-General. There are ten papers on a wide variety of subjects both medical and surgical. Of particular interest are the descriptions of the first recorded case of rat-bite fever in French Equatorial Africa and work on trypanosomiasis. Campourcy has found an extremely low infection rate of *G. palpalis* with *T. gambiense* in the Cameroons. Only 44 of 1,166 flies caught in different areas proved to be infective, with a comparative figure of 518 infections among 9,440 natives examined in the same areas. David and Pape, also in the French Cameroons, record two cases of congenital trypanosomiasis, said to be the first ones in which transplacental transmission has been established beyond doubt. The scope and interest of the articles in this first issue have laid a firm foundation for the success of this journal, which represents the spirit of Free France.

[9] *Proc. Kon. Akad. Wetensch.*, 1926, **30**, 10.
[10] *Rec. trav. bot. neerl.*, 1928, **25**, 1.
[11] *Z. Physiol. Chem.*, 1934, **228**, 90.
[12] *Arch. Pathol.*, 1942, **34**, 625.
[13] *Endocrinology*, 1942, **30**, 135.
[14] *Amer. J. Physiol.*, 1942, **136**, 716.

DIPHTHERIA PROBLEMS

The following is substantially a memorandum on some difficulties in diagnosis, notification, and treatment of diphtheria, prepared by the council of the Fever Group of the Society of Medical Officers of Health.

Artificial immunization has markedly reduced the incidence of diphtheria and minimized the severity of attacks in protected or partially protected individuals. The variation in the classical signs has increased the difficulties of diagnosis in cases exhibiting doubtful throat symptoms, and without evidence of complete immunization, as shown by a negative Schick test, immunity cannot be safely assumed; further diphtheria may occur, though comparatively rarely, in a Schick-negative person. There is a tendency to place undue reliance on the result of swab examination. The bacteriologist cannot distinguish between active diphtheria and the carrier state, and his report must be interpreted in the light of clinical findings. Doubtful cases should be examined for haemolytic streptococci and Vincent's organisms.

Disposal of Cases

Where the practitioner is reasonably certain of the diagnosis an adequate dose of antitoxin must be given at the earliest possible moment, normally in hospital, as it is advisable to give one maximum dose rather than a succession of smaller ones. Only where there has already been delay or there is likely to be delay in admission should the doctor give antitoxin. The fatality rate in diphtheria varies directly with the number of days elapsing between onset of the disease and the administration of an adequate dose of antitoxin. Antitoxin need not be withheld for fear of severe reactions: the modern protein-digested concentrated product rarely gives rise to serum-sickness or related phenomena.

All doubtful cases require continuous observation, during which there should be full bacteriological and clinical investigations; they should be removed promptly to a hospital where appropriate treatment can be given. The procedure adopted in many hospitals to-day is as follows: (1) Where delay in the administration of antitoxin would be dangerous it should be given immediately, before any bacteriological investigation; (2) where a delay of six hours would not be dangerous the Schick test should be performed, swabs taken, and antitoxin given six hours later; and (3) where a delay of one day or more would not be dangerous the Schick test should be performed and swabs taken, and antitoxin deferred until the results are known. In no case should reliance be placed on the swab alone; every suspected case when first seen must either receive antitoxin and be swabbed or must be Schick-tested and swabbed. When in doubt antitoxin should be given.

Doubtful Cases

An individual whose throat or nose is swabbed because of contact with an established case but who has no symptoms must not be classed as a case of diphtheria, notified as such, or sent to hospital merely on account of a positive finding. The procedure for dealing with carriers is fully described in the report of the L.C.C. Departmental Committee on the Nomenclature of Diphtheritic Diseases (1936), to which reference should be made. Routine swabbing of contacts, except in special circumstances—e.g., certain institutional outbreaks—is to be deprecated and should at any rate be restricted to those showing an unhealthy condition of the nasal or pharyngeal mucosa. The waste of effort, time, and material involved is not justified by the very occasional discovery of a healthy carrier.

One of the main functions of an infectious diseases hospital should be the admission of doubtful cases for observation and final diagnosis. The L.C.C. is prepared to issue instructions that "diphtheria observation" will be accepted as an adequate diagnosis for admission to its hospitals, and it is hoped that other hospital authorities will do the same. The public should be taught to realize that the doctor who sends a doubtful case to hospital for investigation is doing better by his patient than the doctor who waits for the result of swab examination. Refusal by hospitals to admit possible cases of diphtheria without a definite diagnosis may compel doctors to notify many about which they are doubtful as actual cases. At present the error in notified diagnosis is very large; it varies in different parts of the country, being in London about 35%. As the Registrar-General corrects only a minority of cases in which the doctor withdraws his notification, the discrepancy between the actual and the published figures of diphtheria incidence is a very serious one. Admission of cases for "diphtheria observation" will go a long way to end this. Medical officers of health of authorities which provide their own infectious diseases hospitals will have little difficulty in dealing with such provisional notifications, and in other cases it should be simple to arrange with the hospital authority and the Registrar-General for regular revision of notifications based on the final diagnosis. If this procedure is adopted a larger proportion of single-bed wards will have to be provided. Newer knowledge of infectivity has already made the large, undivided ward something of an anachronism, and the procedure suggested in this memorandum may help to expedite long-overdue improvements in fever hospital construction.

Nova et Vetera

THE HIPPOCRATICS

Hippocrates is an author revered rather than read. Half a dozen pregnant aphorisms remain in the memories of all physicians, perhaps a score in those of the bookish, but a reader tempted by these purple patches to go to the source is apt to be disappointed. Probably most will read the essay on Ancient Medicine with as much pleasure as a not too technical dialogue of Plato gives, but the collection (even the so-called "genuine" works) contains so much which only one learned in ancient philosophy can understand at all, that interest fails. Just as most know Euclid at second hand (in these days hardly even that), knowledge of Hippocrates must be derivative. Fortunately those familiar with Greek thought, from Galen's time to ours, have written appraisements which the world could read. *Hippocratic Medicine*,[1] by the late Prof. William Arthur Heidel, belongs to this class. The learned author was not a physician, but there is little in this book a physician might not have written. Perhaps he is a little less conscious than a clinician or an epidemiologist would be of the difficulty of identifying the epidemic in *Epidemics*, VI, 7, cap. 1. It *is* tempting to identify, with Littré, an epidemic cough, followed sometimes by anginas and paralyses, with diphtheria, but the Greek author's insistence upon the frequency of nyctalopia is puzzling. In any case, "spotting" epidemics of the remote past is not much more than an intellectual game, and, as Prof. Heidel says, a description of symptoms, however accurate, is not enough.

Did the Hippocratics Over-simplify?

The value of this study is in relating the Hippocratics to their scientific contemporaries and predecessors and in making a comparison between the ideal physician of that age and of our own. Unlike some scholars, Heidel passes by the—to those not expert philologists—rather tedious questions of authorship and uses the whole Hippocratic corpus as material for his study. Naturally the picture he paints is not unlike those of great predecessors, but he does modify some features. He suggests, for instance, that the speculative element of Greek science and its reliance on analogy have been overstressed, and that actually the Greeks were more empirical than they have had the credit for being. Bacon's contemptuous reference to Aristotle as an experimenter has been taken more seriously than it deserved. "Bacon knew little of the way the human mind actually works and had not reflected on the difference between arriving at conclusions and presenting them for the acceptance of others." Most men who have done real research work (a class to which Bacon hardly belonged) realize that truth. Laplace, who was wont to condense an elaborate investigation into the phrase, "It is easy to see that . . .," gave a not very extreme example of a common practice. The often-praised lucidity of French scientific writers in comparison with Germans is partly due to the omission of steps, although the habit may lead to the danger Horace mentioned—in striving for brevity one becomes obscure. In medical writings the danger is not obscurity but fallacious lucidity; a beautifully written textbook may produce an ill-grounded sense of security. The Hippocratics—as the most famous of their aphorisms proves—knew that risk, but Prof. Heidel thinks that they did over-simplify.

The Ideal Physician

Looking back to that wonderful age it is clear that our ideal and the Hippocratic ideal were the same, not only ethically—that has never been questioned—but intellectually. The Hippocratics insisted on the importance of a complete picture. One does not treat a disease but a sick man, an individual, yet not an isolated individual but a member of a group. One must survey the whole field. That is our view too; but while the Hippocratics had the courage—or the presumption—to believe that the physician's own moral and intellectual resources would suffice to enable him to establish a diagnosis and apply or direct the application of the necessary treatment, we believe that this is not always true. The Hippocratics, of course, used

[1] *Hippocratic Medicine: its Spirit and Method.* New York: Columbia University Press; London: Oxford University Press. (13s. 6d.)

technicians, but as subordinates, much as a hundred years ago, or even less, physicians availed themselves of the help of chemists and pathologists. Now, on the intellectual plane, the relation is not of master and servant but of joint heirship. Yet it is still true that in the lives of most human beings the relation of physician and patient is fundamentally what it was in the age of Hippocrates. Those who are afflicted or distressed in mind, body, or estate do not look for comfort to groups but to individuals, not to a committee of the College of Physicians or of the Law Society, but to a doctor or a lawyer. That is why the ideal physician of the Hippocratics—the individual wise, learned, but humble-minded, and a lover of his fellow-man—will remain the ideal of us, of our children and our children's children.

M. G.

Correspondence

Immunization against Enteric Group Fevers

SIR,—On reading the article on enteric group fevers in prisoners from the Western Desert as it appeared in the *Journal* of June 12, my attention was riveted by a point which escaped my notice when writing the paper and which ought to be duly recorded. South African troops are inoculated, not with Army T.A.B. vaccine, but with Grasset's T.A.B. endotoxoid. (It will be recalled that at the Annual Meeting of the B.M.A. in Plymouth in 1938 a session of the Epidemic Diseases Section was devoted to a discussion on immunization against enteric group fevers, in which Dr. Grasset and I took part.)

When troops from the Union of South Africa reached the Middle East in 1941 they had been immunized with Grasset's endotoxoid. The opportunity to make a comparison of the respective preparations (endotoxoid and T.A.B.) was too good to be missed, and, with the co-operation of the D.M.S., U.D.F. (Brigadier Orenstein), arrangements were made to continue inoculating and re-inoculating South African troops with endotoxoid, and to collect and compare the results with those from the rest of the Force. These figures have not yet been finally assessed, but there is no doubt that endotoxoid affords a high degree of protection.

A number of the prisoners in the Sidi Hussein camp—i.e., the South African troops—were therefore protected not by T.A.B. vaccine but by endotoxoid. As all others—exact numbers are not available, but they constitute the majority—were inoculated with Army T.A.B., the main argument of my paper is unaffected, especially as Grasset's endotoxoid shares with Army T.A.B. the basic principle of being made from virulent strains of *Bact. typhosum*.—I am, etc.,

J. S. K. BOYD,
Colonel, A.M.S.

M.E.F.

Comparative Value of Phage and Sulphonamides in Acute Bacillary Dysentery

SIR,—The table published by you of the results of the treatment of bacillary dysentery with sulphaguanidine by Cols. N. Hamilton Fairley and J. S. K. Boyd in the Middle East (*B.M.J.*, 1942, **2**, 674), and the earlier table of the results of Drs. R. Reitler and K. Marberg with sulphapyridine (*B.M.J.*, 1941, **1**, 277), taken in conjunction with my own published results with phage (*Lancet*, 1929, **2**, 273), permit of comparing the therapeutic value of these respective agents.

Translating the Reitler and Marberg records and the Compton records into the Fairley and Boyd notation, we get the comparative data of Table I. My publication, which goes back to the early days of phage therapy when one was feeling one's way, records 45 successes out of 62 cases treated, with the administration in the main of only 3 ampoules of phage spread over 3 days (one ampoule immediately, one first thing the following morning, and one the next morning—a totally inadequate dosage in terms of to-day). The table of "clinical records" accompanying the original typescript, which table the *Lancet* was then unable to publish through lack of space, is fortunately still available. To bring the records into line with the ill 1–5 days before treatment group of Fairley and Boyd on the one hand, and, on the other, with 8 or more stools in the 24 hours before treatment in this same group in the series of Reitler and Marberg, elimination has been made of 3 cases whose date of onset was not recorded, of 7 cases ill 6–10 days, of 4 cases ill 12 days or more, and of 9 cases with less than 8 recorded motions in the 24 hours before treatment. This leaves 22 cases, in the ill 1–5 days before treatment group of Fairley and Boyd, and with 8 or more stools in the 24 hours before treatment series of Reitler and Marberg, with which to establish the appropriate data concerning phage of Table I.

TABLE I

No. of Cases	Average No. of Stools in 24 Hours before Treatment	Average Time in Days after Treatment before Stools per Day were:		Treatment	Authority
		3–5	2 or less		
39	27·8	4·0	5·3	Sulphaguanidine	Fairley and Boyd (1942)
16	20·5	2·5	3·0	Sulphapyridine	Reitler and Marberg (1941)
22	17·1	2·4	3·1	Phage	Compton (1929)

The Fairley and Boyd records deal only with Shiga cases; the Reitler and Marberg records with Shiga, Flexner-Y, Sonne, Strong and Schmitz infections; while the Compton records represent primarily "bacillary exudate" findings, with, among specimens cultured, the isolation of Shiga, Flexner, Hiss, Sonne, Morgan I, Gay-Harris, and Sal. Alex. 5 (Newcastle group) organisms.

For economy of presentation the above table deals only with acute cases, those of the ill 1–5 days group of Fairley and Boyd. The latter's "formed" stool column has been discarded, since the quality of being formed is of little significance in Middle East stools and represents no special criterion of cure. What does this table teach? It indicates the progress of cure, which is seen to be the more drawn out the larger the initial number of stools. If we define as *index of improvement* the ratio of the number of stools in the 24 hours before treatment to the number of days to reach normal limits, then the table permits us to calculate the comparative rate of improvement in the different series. When these calculations are made we get the data of Table II.

TABLE II

	Improvement Index. Daily Rate of Return of Stools to Levels per Day of:	
	(*a*) 3–5	(*b*) 2 or less
Fairley and Boyd	6·95	5·24
Compton	7·12	5·51
Reitler and Marberg	8·20	6·83

Table II shows that the quickest daily rate of return to the *status quo ante* occurs in the sulphapyridine series of Reitler and Marberg, the phage series of Compton coming in second best, and the sulphaguanidine series of Fairley and Boyd a close third. It may be contended that the relatively slower rate of cure in the Fairley and Boyd series was because their cases were Shiga infections. But this contention can almost certainly be dismissed as an explanation, since it in no way holds true for the four Shigas in the Reitler and Marberg series (representing 1/5th of their total cases), where the treatment was with sulphapyridine instead of sulphaguanidine. Here we find a calculated average of 36.25 stools in the 24 hours before treatment for two Shigas ill in the 1–5 day group and two in the ill 6–10 day group (of the Fairley and Boyd table), with a reduction to the level (*a*) in an average of 3.25 days, and to the level (*b*) in an average of 3.5 days—thereby providing for the Shigas of Reitler and Marberg, treated with sulphapyridine, improvement indexes of 11.15 for (*a*) and 10.35 for (*b*). The corresponding improvement indexes for the Shigas of Fairley and Boyd, ill in their combined 1–5 and 6–10 days groups, are easily calculated to be: 6.21 for (*a*) and 4.65 for (*b*). Based on an average of 24.84 (66) stools in the 24 hours before treatment, with a reduction to the level (*a*) in an average of 4 (53) days, and to the level (*b*) in an average of 5.34 (63) days. See the more complete table of the Fairley and Boyd results (*Lancet*, 1942, **1**, 20). The numbers in parentheses are those from which averages have been struck. These figures indicate an average return of Shiga stools towards normal at rates practically twice as rapid with sulphapyridine as with sulphaguanidine. Moreover, for infections with classical bacilli other than *B. shiga*, the Reitler and Marberg series provides daily improvement in the number of stools at rates of 8.51 for (*a*) and 6.47 for (*b*), thus indicating that their Shigas improved at a relatively more rapid rate with sulphapyridine than did their other cases.

The sulphonamide statistics of Fairley and Boyd, as well as those of Reitler and Marberg, are important the former as serving to

explode the myth about any superiority of sulphaguanidine over phage in the treatment of acute bacillary dysentery; and the latter as establishing that sulphapyridine can be the more efficient of the two sulphonamides. The phage statistics here dealt with are far from showing phage at its best, and are quoted for the want of any more recent. They relate to pioneer work by myself when one was feeling one's way with phage and dosage was being worked out. Since then we have not troubled to collect statistics for publication, the Alexandria community having become, and having remained, so phage-minded as to render any further *proof* of the efficacy of phage unnecessary. With the perfected phage preparations available to-day, and administered every 3 or 4 hours in the acute stage, attacks of bacillary dysentery have become matters of little concern (see Compton, *B.M.J.*, 1941, **2**, 280). Whatever may be the merits of the sulphonamides in bacillary dysentery, few practitioners with any genuine experience of good phage preparations will, I think, want to change their accustomed line of treatment with phage for sulphonamides, unless it be in the occasional chronic case that may not respond straightway to phage.

A final word. The Services would appear to have been let down over sulphaguanidine through insufficient supplies. Thus in your report Col. Fairley is reported as saying: "*If supplies were sufficient* [the italics are mine] the therapeutic ideal from the Army point of view was that every dysentery patient should have sulphaguanidine at the earliest possible moment." Now, since, on the showing of the Army's own statistics, sulphaguanidine possesses no advantage over phage in acute dysentery, why should not an enlightened phage policy—even an eleventh-hour affair—be now embarked upon? And the more so since inexhaustible supplies of phage could without much difficulty be made available, if the Services so wished, with untold benefit to our fighting men of all three Services.

—I am, etc.,

Alexandria. ARTHUR COMPTON.

Site of Embolus after Spinal Anaesthetic

SIR,—Major H. Agar in his article on peripheral arterial embolism (July 24, p. 101) makes the point that he employs spinal anaesthesia when performing embolectomy in the lower limbs. He does not say how long before operation the anaesthetic is given.

In the past year I have seen two cases treated by spinal anaesthesia and immediate operation. On each occasion when the vessel was exposed at the judged site of the embolus it was found that the embolus had moved peripherally owing to vasodilatation. I therefore believe a better method is to give a spinal anaesthetic in the ward, leave the patient for at least half an hour, and then redetermine the site of the embolus. By so doing it is possible that it may have moved sufficiently far distally for operation to be unnecessary.—I am, etc.,

St. Thomas's Hospital, S.E.1. RAYMOND DALEY, M.R.C.P.

Eve's Method of Artificial Respiration

SIR,—Dr. Eve's method of artificial respiration has received welcome and deserved publicity during the past months, but it is unfortunate that so many of its advocates are concerned with apparatus. The method was first used on board a ship on Nov. 6, 1933, at the Falkland Isles, a few weeks after the publication of Dr. Eve's second paper (*Lancet*, Sept. 30, 1933) and before the brilliance of his simple description had been obscured by a great cloud of witnesses or encumbered by an ever-growing literature on apparatus. My reason for drawing attention to this case is that it remains, to the best of my knowledge, the only one in which Eve's method has been used at sea during the ten years that have passed since the method became available. Until more cases are reported on it does not seem profitable to theorize on apparatus, and it may be excusable to quote what actually happened on this occasion.

Dr. Eve's principle was applied within five minutes of the occurrence of respiratory failure, and artificial respiration was maintained successfully and without effort for two hours, being abandoned only when circulatory failure was added to cessation of natural respiration. Details of this case were published (*J. roy. nav. med. Serv.*, 1934, 4, **20**, 365) and the method thus commented on: "Its use in an emergency, in which there may be several cases of asphyxia to deal with at the same time, is only limited by the number of stretchers and hands available for rocking." Had the method at that time been so closely identified with ideas on mechanical appliances as it is to-day it would probably not have been attempted with improvised equipment, on the score that such substitutes would be too clumsy and ineffective.

In the latest addition to communications on appliances Dr. J. R. Lahiff (July 10, p. 42) has produced an ingenious and simple piece of apparatus, but his suggestion that all stretchers should be so fitted and that this would effect a great saving of life is open to two objections. The number of cases of asphyxia in relation to the total numbers for which stretchers are used is negligible and the universal modification of stretchers for this purpose is not, therefore, reasonable; if, on the other hand, a case of asphyxia occurs in the absence of stretcher so modified, lives may be lost through the idea gaining ground that the method is impracticable with improvised means. It is relevant to remark that such cases usually occur in wartime in groups, that, therefore, several modified stretchers might be required, and that for this reason the modification of a single stretcher in each ship would serve no good purpose. —I am, etc.,

London, E.C.4. J. J. KEEVIL.

Adolescent Spondylitis

SIR,—Dr. C. W. Buckley (July 3, p. 4) devotes a considerable proportion of an article on the differential diagnosis of spinal arthritis to that form for which the late Dr. Gilbert Scott proposed the name "adolescent spondylitis." But Dr. Buckley does not confine himself to diagnosis. He gives a paragraph on treatment. As this summary appears to me to be unduly pessimistic, I have been hoping that someone would criticize it in your columns. But as this expectation has not so far been justified, I should like to offer a few remarks. They are based on an experience of some hundreds of cases.

To advise patients in early cases to rest in bed, unless for a very brief period, is to run the risk of their losing movements which they may never recover, Rest of itself will not check the disease, and if proper measures are taken it should seldom be necessary. The most effective treatment is that introduced some ten years ago by Dr. Scott. This has nothing to do with "deep *x* rays," but consists in the exposure of the whole body to subreaction doses of *x* rays generated at about 100,000 volts. He called this procedure "the wide field method." If this form of treatment is properly carried out the prognosis in adolescent spondylitis is good, as at least three-quarters of all early cases show a rapid and satisfactory response. Of those which do not, there are, in my experience, some who will nevertheless benefit by vaccines,—I am, etc.,

London, W. F. HERNAMAN-JOHNSON.

Planning of Medical Education

SIR,—I have reread Prof. F. Davies's article (May 1, p. 547) in the light of his letter (June 26, p. 800). I am tempted to repeat my question: "Are we never to test the student's powers of co-ordinating the anatomy of the body as a whole?" If the answer is in the negative Prof. Davies should say so; if in the affirmative, then how are we to do this if we dispense with the 2nd M.B. examination as he suggests?

It is certainly not true of one university (Birmingham) to say that students of anatomy are "fully engaged right up to the eve of their professional examinations in acquiring new minute details and attempting to revise old ones already noted." Our students complete their dissections by the end of the fourth term, and during the fifth term are wholly engaged in correlating the observations made during the course of their investigations.

Prof. Davies speaks in his original article of students "crawling along" and objects to my reminding him that students do not now do this. Machinery has been instituted to dispose of the inept student without vocational aptitude at the "subacute" stage, and I do not believe that any medical school is likely to revert to the bad old days of the "chronic"; therefore this argument is not relevant.

I entirely agree with Prof. Davies as to the advisability of interviewing candidates, but that this should be undertaken by a committee (with or without representatives from other faculties) is not practicable because of the time involved. Since the results of many of the entrance examinations (Oxford and Cambridge School Certificates) are not declared until the eve of the new session, interviews cannot be postponed until after

these results are known. Thus we cannot wait for the weeding-out process of the entrance examinations, and all candidates must be interviewed. I am about to devote the major part of the summer vacation to this work, which, besides tact and patience, needs enthusiasm. I have most encouraging evidence from entirely neutral sources that this time is well spent. My work is simply to collate details concerning each applicant and to submit these to a selection committee, who make the final choice. In making our decision we have found a searching questionary sent to heads of schools most helpful.

I was surprised to learn from Prof. Davies that I am guilty of placing a *premium* on feats of memory. I must confess I do not despise the memory, indeed I realize it forms the basis of all knowledge: *Memoria est thesaurus omnium rerum et custos.* If Prof. Davies only knew how we eschew placing a *premium* upon memory, and if he knew of the efforts made here to discourage students from sharpening this faculty on barren anatomical flints, he would realize that he would be hard pressed to prove his assertion.

At this critical period in the world's history we are as alert to the prospect of the door of opportunity opening before us, perhaps quite suddenly. We want to be prepared; we are neither self-satisfied nor complacent. We realize that in every walk of life there are wrongs to be righted and improvements to be made. We should, however, be grateful, as we grope forward in the darkness, for the voice that whispers *Festina lente.* We should not mind if when we venture an idea someone is unkind enough to criticize; rather should we

> "Welcome each rebuff
> That turns earth's smoothness rough,
> Each sting that bids not sit nor stand but go!"

Destructive criticism if you like, but offered in response to the invitation given in the last paragraph of Prof. Davies's original article; not unkindly meant, and abundantly justified if by this we may be prevented from taking but one false step.—I am, etc.,

Birmingham. C. F. V. SMOUT.

The People and State Medicine

SIR,—I fully agree with Dr. J. C. Gillies's spirited reply to the criticisms voiced by the Labour Party (*Supplement*, July 17). At the same time I have, like most of us, including Dr. Gillies, considerable sympathy with the people's case. They are being badly served, not through the fault of the doctors. If the successive Ministries of Health, in their handling of National Insurance matters, had deliberately intended and manœuvred to bring the panel system into contempt and make it the byword which another of your correspondents rightly says it has become, they could not have done so more effectually than by their policy over the past thirty years. Perhaps it is too much to expect that they should understand either the people or the medical profession in directing our national experiment in State medicine. But even politicians and "pen-pushers" are aware that if a good service is wanted in any department of life it has to be adequately remunerated. By persistently ignoring this common-sense aspect the Ministry of Health has given some colour to the suggestion that it was hoped the panel system would fail and thus create a demand for a State-controlled service. In any case such policy has overreached itself. Whatever the nation wants, it does not want to be put "on the panel."

For the high policy that has directed this "twopence a week" service, misnamed National Health, I have had, though participating in it for fifteen years, little but contempt. I fled from the impossible hypocrisy of it in the Midlands of England to a State service in one of our Colonies, where I formed the opinion that in the matter of medical attention on the whole the Chinese and Indian coolies were getting the best of it. When perforce I returned home to general practice I took care that my panel should be small and so well offset by a prosperous population that I would be financially independent of the restrictions of N.H.I. practice, and so in a position to make no difference, whether in time spent or in remedies employed, between panel and private.

Of course such a policy is the best policy all round. No doctor wants the illness of a contract patient to drag on if it can be cut short. Here a good example of incompetent direction and interference with the doctor by the minions of the Ministries falls due to be publicized. Panel doctors were informed by an expert that liver injections were only to be used in the hyperchromic anaemias. The treatment for the hypochromic type was iron. Good doctors, in a year's work, save more lives and relieve more serious sickness by injecting liver extract in the forbidden groups than in frank cases of Addisonian anaemia. Even before Prof. Davidson's brilliant work on the nutritional anaemias came out, even before this war brought its insidious attack on certain individual metabolisms which had come to depend on a high animal diet, it was only common sense to give an occasional jag of liver preparation to the debilitated dyspeptic or the milk-fed convalescent. It is perhaps generally known that a timely injection of liver will prevent and even cut short attacks of angina pectoris; but presumably the Ministry's expert did not know this. Myself, I am still in the humiliating position of having to wangle some liver extract somehow for panel patients who would be the better for it but are not frank pernicious anaemia cases.

To produce more gravamen for my charge: what is the result when a new keen doctor comes to a district and gets a reputation for thoroughness? His panel becomes loaded with chronics and undiagnosed cases from miles round, not to mention the neurotics who are in search of *aliquid novi.* The system has a way of ensuring that the better work a doctor does the more will he be swamped with underpaid contract work. And, since there are only sixteen working hours in the day for most of us, he has no time for the more remunerative work and finds it hard to make a decent living. This means less comfort for himself, shorter holidays (the leisure that sweetens the day has long since gone with the wind), petty economies in the replacement of drugs, dressings, and the expensive tools of his craft, not to mention books. He degenerates into the kind of doctor that the "twopence a week sickness club" legislates for and ultimately gets.

I have often asked myself (having run away from slum practice twice), Is it possible for a man who can live and bring up a family on, say, £1,000 a year to limit his panel to 2,500 and, refusing private practice, make a good job of it? The answer is, No! First, he has the dependants to reckon with, mostly poorly paid practice that gives him little or no help with his financial budget. Secondly, the night-work, thanks partly to the necessity for certificates "on the dot," is more than an ordinary man can stand. Thirdly, he has the consultants to reckon with. These gentlemen, with whom as individuals I have no quarrel, are also in a position of having to earn a living in the few hours left them after the claims of hospital and dispensary work have been satisfied. (Incidentally, do the voluntary hospitals make sure, as they ought, that the approved societies and the Ministry do not exploit their charitable basis?) Now a doctor who has only panel patients, with his frequent demand for hospital beds (often urgently) and for diagnostic help which very often he should not require—for instance, how many panel doctors have time to use a microscope even on a urinary deposit?—such a doctor will not long endear himself to the specialist to the extent of being free of their wards and side-rooms, not to mention their firesides where so much good medical tuition is received and given. And so he, too, will degenerate into the "twopence a week" doctor.

Of this shoddy system the profession has tried up to now to make the best. Doctors have been, I think, very humane and generous almost to the point of hypocrisy in trying to conceal from the panel patient that poorly paid contract practice cannot be run on the same generous lines as private. We have accepted rebuff after rebuff from the Ministry. The last straw has been the inclusion of those with incomes up to £420—many of them on the telephone! That this class is to pay twopence a week for their doctoring is, on the face of it, absurd. We owe, even with a war on, no further loyalty to the Ministry of Health: we have kept silence and smoothed things over too long: the facts should be made public now. With the chance of reorganization before us it is our duty as a profession, no matter whose feelings are hurt. My own policy is now to let my panel patients know the limits of contract practice, throwing the blame where it belongs—on a Ministry that has dealt ungenerously with the doctors and can no longer expect them to deal generously with a system that only good will has made workable for so long. Any considered action the B.M.A. takes will, I am sure, be supported by the majority of panel doctors.

—I am, etc.,

Gaerlochhead, Dumbartonshire. A. GUTHRIE BADENOCH.

Actinomycosis of the Tongue

SIR,—In his interesting account of a case of actinomycosis of the tongue, which got better after treatment with sulphonamides, Dr. A. McCloy (July 24, p. 106) suggests that infection may have originated from a bullock which was suffering from "wooden tongue." This is unlikely, since it has for many years been known that the "wooden tongue" of cattle is due to infection with a bacillus, and the condition is known as "actinobacillosis."—I am, etc.,

London, W.1. V. ZACHARY COPE.

Education and Health Services Areas

SIR,—In the suggestions for educational reform put forward by the President of the Board of Education county boroughs and county councils were mentioned as administrative areas. Now, while there is no objection to the former, there is undoubtedly strong objection to the latter—the county being the area—as community of interest is absent in such an area, and community of interest is vital for the success of all social organization and services, including education.

I therefore suggest that the county should be replaced by a region based on the university, which is really the true centre of enlightenment in the area served by it. To give examples of what I mean. Round Manchester and Liverpool in the North-West, Leeds, Sheffield, and Newcastle in the North and North-East, Birmingham in the Midlands, Bristol in the West, and Cardiff in Wales, etc., educational areas or regions could be formed which would be really socially coherent and natural, for they would have as headquarters a university, which people would naturally regard as their cultural and educational centre. The university region or area could also be the area for other administrative activities, such as public health and the new State Medical Service, as in it there would be the medical school, the large hospitals, special hospitals, and laboratories with their staffs of highly qualified physicians, surgeons, and specialists. It is with these institutions that the local health centres would be linked, and to their trained staffs that the local practitioners would naturally turn in difficult cases for advice and treatment and, where necessary (through research laboratories and high-powered x-ray units), investigation, it being remembered that ease of access and contiguity are important if these facilities are to be availed of.

The region formed of closely grouped local areas round a large town has another big advantage over the county with its scattered local units. In the Manchester area, for instance, under the county scheme Ashton-under-Lyne's headquarters would be Preston, for Hyde and Stalybridge it would be Chester, and for Glossop, Derby; yet all these towns are within 6 or 7 miles of each other and all except Glossop (which is 12 miles off) are about 6 miles from Manchester. Similarly in the Birmingham area Dudley, Bilston, and Sutton Coldfield would have headquarters at Worcester, Stafford, and Warwick instead of Birmingham with all its comprehensive medical facilities. Arguments of a similar nature would hold for town planning, which has an important part to play in post-war social organization. Are three different town-planning authorities going to plan for the satellite towns of Manchester, and three different ones for those of Birmingham? Surely all this would be fantastic, and in times of revolutionary change present realities should guide us. The county had its uses in feudal days, but feudal days are surely over. Let the Government, then, employ reason and courage in planning for education and health and our civic life.—I am, etc.,

Glossop. E. H. M. MILLIGAN, M.D.

Health Services in the Future Social Order

SIR,—There are still a number of medical men who, while taking a keen interest in the future of this country's health services, appear to overlook the fact that the fundamental issue is not a purely domestic one. Some of them not only ignore the political aspect of the matter but even seem to adopt a scornful attitude towards anyone whose vocation or discretion it is to notice overriding political considerations.

It is time all medical men took a wide glance at the political arena of which their own present transition is a part. The world, and particularly this country, is moving rapidly towards the attainment of certain social aims, chief among which is the equal enjoyment by all men of at least the essential amenities of life. The provision of such amenities will be increasingly demanded of the State, and the tendency will be to discourage private and subsidiary enterprise in connexion with them. That outcome is no longer just a socialist mirage, but probably represents the actual aspirations of a majority of the present electorate of this country. In any case it is a virtual certainty that in the course of the next twenty or thirty years medical and other essential services will become entirely a State responsibility. The medical profession must face the fact that, like all other institutions, it is borne on the flow of this political tide. Its internal energy should be used to pilot it in mid-stream rather than dissipated in futile attempts to resist the current. If a complete State service is inevitable in the long run, it would be far better and more dignified for the profession to plan it now than to capitulate to the idea by uneasy stages.

There are people who appear to imagine that we have only to make up our minds what sort of medical service will suit us best and the Government will then pass the necessary laws to put it into force. They urge delay pending demobilization, not in order to consult the wishes of a large section of the community at present abroad; not even with the object of adding a certain amount of medical experience to their own; but primarily because they feel that it is important that the future medical service should provide the sort of professional life desired by the younger generation of doctors who will see the most of it. Others (often heard inquiring "Who started all this?") seem to think that their contentment with their present position provides adequate justification for their opposition to anyone's desire to change it in any way. What such people do not seem to realize is that we shall have to deal with a Government whose mandate is derived from a somewhat wider and less stable body of opinion than that to which they subscribe. Thus the planning of medical and other essential services might not be designed primarily to suit the private interests of those who may be called upon to run them.

The Government must be well aware that both inside and outside the House of Commons there is a highly critical consensus of opinion somewhat impatiently waiting for action to implement their promises of social reform. This majority would be quick to discern any sign that might indicate that it was trying to preserve the *status quo*. In fact the Government's practical intentions in relation to the demanded reforms will naturally be judged by what is achieved in its first attempt to put any of them into operation. It would appear that the new health service is likely to be the first practical example of the sort of social order this Government intends to create. Thus medical reform, far from being a domestic matter, might well provide one of the most important political issues of this decade. The effect of this will be to widen and intensify the scope of every question. For example, whereas retention of private practice might have been tolerated as an anachronism best left to die a natural death, it might now be hailed as a certain indication that the Government intended to cater for sectional interests generally and in a way that would perpetuate the reservation of a super-service in life's essentials for the benefit of a small and wealthier minority. In spite of such possibilities there are many medical men who, while believing that this Government represents them better than any probable alternative, nevertheless persist in urging a policy that might even contribute to its downfall.

However much we may dislike this mixture of medicine and politics it is obvious that the new medical coat will have to be cut according to the political cloth. It would therefore be as well if members of the profession took the measure of the stuff before deciding what range of patterns is available for their future habit.

—I am, etc.,

Eye, Suffolk. J. SHACKLETON-BAILEY.

Refresher Courses for Service M.O.s

SIR,—For some months now your *Journal* has been debating how to make the medical profession shipshape and seaworthy at the end of the war. There is one suggestion which I believe to be important. When I qualified I took the usual underpaid house post, and was then conscribed at the end of the sixth month. In those six months I had just enough time to heave overboard all the twaddle that one must swot up in order to pass one's finals, and was just beginning to find my feet in medicine when I was called up. Ever since then I have been serving in one of His Majesty's more skittish destroyers and proud to be a member of her gallant company, but as for medicine—well, if I do an hour's work in the sick bay I congratulate myself on having had a busy day.

Surgical experience of a special kind may be obtained during the war, but few of us will be lucky enough to get a job where medical experience can be obtained to any great extent. It therefore appears to me, Sir, that in these discussions about patients getting better and more elaborate treatment after the war, a thought should be given for the flood of young doctors who, through no fault of their own, have forgotten all their medicine, and who will descend upon the diseased section of the community with, most of them, neither the time nor the financial stability to take a refresher course. So I suggest that we try to make the State realize the necessity for

continuing our relatively generous Service pay for at least six months after demobilization on condition that we take that time in attending, preferably, refresher courses on medicine and allied subjects specially planned for us (e.g., ear, nose, and throat diseases).

It may be argued that we can easily keep in touch with modern progress from our medical journals and revise the already known from our textbooks. The first, however, requires a postal service infinitely more efficient than our present one (at any rate in this theatre of war); while as for the second—well, most of us have been medical students in the much too recent past for us to revert to reading about diseases without actually seeing them. Finally, it may be said that this is what house appointments are for. The number of these available, however, would be quite insufficient for the demand, nor do I see why a man should be rewarded for the services he rendered on active service and for the enthusiasm he now shows in his profession by the inadequate pay and—so frequently—hopeless living conditions of the average house-officer. In many cases, on the strength of the better Service pay and allowances, he may have married during the war, which would make his getting a house job quite impossible unless he happens to have a private income, and for that lucky man my suggestion is not made in the first place.—I am, etc.,

R. MOYLE,
Surg. Lieut. R.N.V.R.

Radiological Practice in a Comprehensive Medical Service

SIR,—In view of the probability that a comprehensive medical service may be introduced by the Government it is generally felt that the time has arrived when further steps should be taken to safeguard the interests of medical radiologists in such a service. We therefore invite medical radiologists to a mass meeting to be held on Saturday, Aug. 7, at 11 a.m. in the Reid-Knox Hall at 32, Welbeck Street, London, W.1 (by courtesy of the President and Council of the British Institute of Radiology). At this meeting all those interested in the future of radiology will have an opportunity of expressing their views as to the most suitable means of safeguarding their interests.—We are, etc.,

R. E. ROBERTS.
J. DUNCAN WHITE.

London, W.

Medico-Legal

SPACKMAN DECISION: APPEAL OF G.M.C.

HOUSE OF LORDS' JUDGMENT RESERVED

The House of Lords, consisting of the Lord Chancellor (Lord Simon), who presided, Lord Atkin, Lord Macmillan, Lord Romer, and Lord Wright, heard on July 19, 20, and 21 the appeal of the General Medical Council against the decision of the Court of Appeal[1] which, on June 18, 1942 (reversing an order of the King's Bench Divisional Court[2]), quashed the direction given by the Council to erase from the *Medical Register* the name of Dr. Eric Spackman. After a decree of divorce had been granted to a Mr. T. C. Pepper in a suit in which Dr. Spackman was cited as co-respondent, the Council, in November, 1941, accepted Mr. Justice Langton's finding of adultery and refused to allow Dr. Spackman, who admitted professional relationship, to call further evidence challenging the issue of adultery, on the ground that such evidence was available and could have been given before the Divorce Court. The issue was whether in those circumstances the Council made "due inquiry" as prescribed by the Medical Act before coming to their decision. Mr. Charles Harman, K.C., and Mr. Douglas C. Bartley appeared for the General Medical Council. Dr. Spackman was represented by Mr. Cecil R. Havers, K.C., and Mr. Henry C. Dickens.

Mr. HARMAN said that the case raised a point of great importance to the Council, which had to act in a judicial capacity in dealing with alleged misdemeanours of members of the medical profession. The point was a narrow one in that it turned upon the construction of Section 29 of the Medical Act, 1858, but it also involved the question of natural justice or, as it was called by some, substantial justice. Dr. Spackman complained that natural justice had not been done. The question was whether there had been "due inquiry" as laid down in the section.

The facts were that Mrs. Pepper brought a suit for divorce in 1939 on the ground of her husband's cruelty. The husband put in an answer denying cruelty and cross-petitioned for divorce, alleging adultery with Dr. Spackman during the period 1934-8. The hearing before Mr. Justice Langton occupied ten days. In the result the judge pronounced a decree in favour of the husband on the ground of adultery in 1938, stating that in his judgment the "adultery was not open to any reasonable doubt at all." At the Council inquiry which followed, Mr. Oswald Hempson, for Dr. Spackman, desired to call further evidence to answer the charge of adultery. He admitted that this evidence could have been made available to the Divorce Court, and that if he himself had been conducting the case in that court it would have been called. Mr. Hempson further contended that under Section 29 there was a distinction drawn between a conviction and the judgment of a "civil" tribunal such as a Divorce Court (which was not a conviction), that the Council was not bound by the decision in the Divorce Court, and was entitled to call further evidence. The Council, however, refused to hear the evidence on the ground that it could have been called in the Divorce Court, and that no special circumstances had been shown to exist for admitting further evidence on the adultery issue.

Lord ATKIN said that the charge on which Dr. Spackman was brought to the Council was for committing adultery. How, then, was he to meet it?

Mr. HARMAN said that the essence of the charge was that it was adultery of which he had been found guilty by the Court.

The LORD CHANCELLOR said that in the notice of inquiry sent to Dr. Spackman there was a paragraph which stated that "any answer, admission, or other communication or application which you may desire to make respecting the said charge or your defence thereto" should be sent to the Council's solicitors. The defence might be, "The charge that I committed adultery is untrue. I never did." Could the Council retort by saying, "We cannot allow you to say so because the Divorce Court found you guilty"?

Mr. HARMAN submitted that a body such as the Council was entitled to lay down rules for its practice and to say that where a matter had been considered by the High Court the court's decision should be accepted unless there were special circumstances such as that fresh evidence had been brought forward since the hearing.

Lord WRIGHT: Do you say that the decree is sufficient to establish due inquiry, or do you say it depends on the circumstances of the case?

Mr. HARMAN replied that what was "due inquiry" must depend in every case on the particular circumstances.

Lord ATKIN said that the point here seemed to be that Dr. Spackman wanted to call evidence and the Council would not let him. It seemed a denial of justice.

Mr. HARMAN pointed out that Dr. Spackman had had the opportunity of calling this evidence at the Divorce Court.

Lord MACMILLAN: That is not the point. We are concerned with the conduct of the General Medical Council.

The LORD CHANCELLOR said it was mentioned by the Lord Chief Justice in the Divisional Court that the Legal Assessor of the Council informed Mr. Hempson that it was the Council's practice to accept, *prima facie* at least, the decree nisi as evidence of adultery, and the onus was on Mr. Hempson to show special grounds why the Council should not accept it as such.

Lord ATKIN: I should have thought that was not allowing him to meet a *prima facie* case.

Lord WRIGHT: If witnesses had been called or if only a written statement had been put in and the Council had said, "Well, having read the statement we do not think it helps us at all," would there have been any complaint then?

[1] *British Medical Journal*, June 27, 1942, p. 806.
[2] Ibid., April 18, 1942, p. 510.

Mr. HARMAN said that it was easy to be wise after the event. He was not denying that it would have been advisable, as things turned out, to have admitted the evidence, but that was not the point. The question was whether there had been substantial miscarriage of justice.

Lord ATKIN: The point is whether there was due inquiry.

Mr. HARMAN said that one could not conceive that if the additional evidence were likely to have been helpful it would not have been called in the Divorce Court in a contested case. It was odd to suggest that while the Council might safely abide by the decision of a petty sessional court on the smallest criminal matter it must not rely on the decision of a division of the High Court. When such a division was specially deputed to try this particular issue of adultery and was eminently qualified to do so, the Council was entitled to rely on the decision of that court. In what circumstances could it be said that the whole issue ought to be canvassed over again? When an accused man wanted to deny the charge afresh he thought the Council might well take as its example the Court of Appeal, and say that this was not a special circumstance entitling the accused to call evidence which was available but was not called at the trial. The right test to apply was whether the decision offended the ordinary man's sense of justice.

Mr. CECIL HAVERS, for Dr. Spackman, said that in almost every profession other than the medical there was a statutory right of appeal from the decision of its disciplinary body, but from the decision of the General Medical Council there was no appeal. He did not criticize the standing order of the Council relating to procedure at inquiries; his criticism was that, having made excellent rules, the Council failed to comply with them. What weight was to be attached to the further evidence was entirely a matter for the Council, but the Council must hear it. In fact the Council did not even allow Dr. Spackman's solicitor to explain the nature of the evidence. According to the Act, due inquiry had to be made by the Council and by nobody else. The Council was no doubt entitled to inform itself of the procedure in other courts of law, but a practitioner confronted with a very serious charge was at least entitled to go before his own tribunal, to affirm his innocence, and to tender witnesses to corroborate his story. The Council did not hold "due inquiry" by ascertaining that a court had made inquiry.

Mr. HARMAN said that he would ask their lordships to hesitate long before adding a further burden to the heavy one already borne by the Council. The Council was entitled to rely on any help given by a decision in the High Court.

Their lordships reserved judgment.

PROOF OF NEGLIGENCE

A doctor was recently sued for negligence in the High Court. The plaintiff was the father of a boy who had been evacuated to Buckinghamshire and had fallen ill with diphtheria. He called evidence that the boy had complained of pain in his neck and throat on Sept. 5, 1940. The doctor did not suspect diphtheria and did not take a swab till the 13th. The pathologist's report took four days to arrive, and during the interval the doctor did nothing. On the 17th the boy was removed to hospital hopelessly ill with diphtheria, and he died two days later. The doctor did not go into the box or call evidence, and his advisers submitted that in the absence of medical evidence, none of which was called by the plaintiff, he ought not to be found negligent. From this proposition Mr. Justice Atkinson dissented most strongly. If it were sound, he said, the medical profession would be in an amazing position and the public would be hopelessly at their mercy. Everyone knew the difficulty of getting a medical man to give evidence against another; a poor plaintiff simply could not do it. The judge said it was the first time in his experience that a medical man charged with negligence had refrained from going into the witness box to explain, excuse, or throw light on what had happened. He awarded £75 damages.

From the available reports of the case it does not appear that the doctor's counsel took the conventional course of submitting, at the close of the case for the plaintiff, that no case had been made out for him to answer, and then of calling evidence if the judge ruled that a case had been made out. He seems to have relied on the absence of evidence of the standard of care and skill required in the particular circumstances. The judge, on the other hand, seems to have considered that by any ordinary standard of care and skill the doctor should have done a good deal more than he actually did.

Obituary

EDWARD PHILIP STIBBE, F.R.C.S.

After several months of suffering borne with that stoicism and cheerfulness so characteristic of him Prof. E. P. Stibbe died on July 24 at the age of 58 in his home at Gerrard's Cross. He was educated at Glasgow, Wyggeston School, Leicester, and Charing Cross Hospital, obtaining the diplomas of L.R.C.P., M.R.C.S. in 1908. For the next six years he worked over-seas, first as Government medical officer in Fiji, and then as a district medical officer in South Africa. During the war 1914-18 he was M.O. at the 1st Northern General Hospital, and in 1919 he became professor of anatomy at the University of South Africa. Returning to this country, he took his F.R.C.S. in 1925 and was senior demonstrator in anatomy successively at Durham, Liverpool, and University College, London, with Elliott Smith. He then went to the London Hospital, and in 1935 he became university reader in anatomy, subsequently proceeding to King's College, Strand, where he was appointed professor of anatomy. Besides many papers on medical, anatomical, and neurological subjects contributed to the *South African Medical Journal*, as well as to the journals here, Stibbe published, in 1930, *A Textbook of Physical Anthropology*, in 1934, *Anatomy for Dental Students;* in 1940, *Aids to Anatomy*. In 1932 he edited *Six Teachers' Anatomy*. He examined in anatomy for the L.R.C.P., M.R.C.S. (1933-8), for the primary F.R.C.S. (1936-41), and for the Universities of Durham and Liverpool, as well as for the Society of Apothecaries. He was a kindly and understanding examiner, as well as a great teacher whose wide experience of medical and surgical practice brought a vitality and interest to his teaching of a subject which is so often treated as mainly academic.

Stibbe (writes a friend) was a loyal son of the Royal College of Surgeons, by whom he was appointed Hunterian Professor for 1936, his lecture on Jan. 27 of that year being one of only four at which the attendance exceeded one hundred. What he regarded as one of his greatest honours was his appointment by the Royal College to be an examiner for the Over-seas Primary F.R.C.S., which was to have been conducted in India and Egypt during the winter of 1939-40. The outbreak of war, however, necessitated the cancellation of these examinations. Stibbe's affection for his students was a very real thing, and when, owing to the war, the medical faculty of King's was evacuated first to Glasgow and then to Birmingham, he it was who became the *paterfamilias*; nothing was too much trouble, either in term or vacation, from organizing vacation work "to help the war effort" to getting out his car at midnight in order to take a student with acute toothache to see a dental surgeon —picking up the dental surgeon *en route*. Of an unusually quiet and retiring disposition, Stibbe was a most lovable man with a profound sympathy and affection for his fellow men; it was a real joy to him to be able to help anyone who was in trouble; he was indeed the personification of Kipling's "thousandth man." The deep sympathy of his many friends goes to his widowed mother and to that gentle lady, his wife, who through all these months has by her own courage and cheerfulness helped to strengthen and comfort both him and his friends. The world is the poorer for the passing of Philip Stibbe.

Mr. GEORGE HAROLD LAWSON WHALE, who died suddenly on June 17, was for a long time surgeon for diseases of the ear, nose, and throat to the National Temperance Hospital and the Hampstead General Hospital. He was born at Woolwich in August, 1876, and was educated at Bradfield College, Jesus College, Cambridge, and St. Bartholomew's Hospital, graduating M.B., B.Ch. in 1902 and proceeding M.D. in 1907. He was a keen golfer, and at Cambridge played tennis for the University. He took the F.R.C.S. in 1912, on his return to civil life after holding a commission in the I.M.S. He then devoted himself to oto-rhinology and became chief assistant in the ear department at Bart's and assistant surgeon to the Metropolitan Ear, Nose, and Throat Hospital. During the last war he served in the R.A.M.C.(T.) as surgical specialist to No. 53 General Hospital, B.E.F. In 1915 he wrote jointly with Sir James Dundas-Grant on injuries of the throat and nose, and four years later he published a book *Injuries of the Head and Neck*, followed by a little work *Modern Treatment of Diseases of the Throat, Nose and Ear*. During the present war Mr. Lawson Whale was appointed by the Ministry of Health to deal with air-raid casualties at the Hampstead General Hospital under

the Emergency Medical Scheme, and in the course of his duties an incident occurred which obliged him to bring an action for libel against a gentleman who made a complaint in writing to the secretary of the hospital in regard to his conduct to certain patients who had been injured in an air raid. After evidence had been heard, Mr. Whale, through his counsel, stated that he was satisfied that the defendant had acted responsibly and throughout in good faith, and as his only object in bringing the action had been to clear his reputation he withdrew it, the defendant on his part expressing regret that the letter he wrote was too strong in its terms. The judge welcomed the settlement, saying he would not like it to be thought that this ending to the case reflected on Mr. Whale in any way.

We regret to announce the death in Cornwall on June 23 of Dr. JAMES ALEXANDER HENDRY, a former chairman of the Buxton Division of the B.M.A. He studied at the University of Aberdeen, graduating M.A., B.Sc., M.B., B.Ch. in 1908, and then, after holding a house appointment at the Nottingham General Hospital, went to Buxton in 1911, where by his ability and devoted attention he quickly won the respect and confidence of his patients. During the last war he served as captain, R.A.M.C., in Salonika, Mesopotamia, and France. Dr. Hendry's sound judgment and sympathy with the sick were recognized by all his colleagues at the Devonshire Royal Hospital, Buxton, and at the Buxton District Hospital; he served both institutions as physician and also as member of the committee of management. The news of his death came as a painful shock to his patients and fellow-practitioners, though it was well known that his retirement from active work had been caused by ill-health.

We regret to announce that Mr. CHARLES BERTRAM THOMSON, F.R.C.S., of Wimborne died on June 29 as the result of a road accident. He had practised many years at Wimborne as a member of the firm of which Sir Kaye Le Fleming is senior partner. He studied medicine at Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1899 and taking the F.R.C.S. in 1905, after holding the posts of house-surgeon and obstetric resident at Guy's and clinical assistant at the Evelina Hospital for Sick Children. Among his other local appointments were those of certifying factory surgeon and police surgeon, and he had been M.O.H. for Wimborne and Cranborne Rural District. He joined the B.M.A. immediately after qualifying. Thomson devoted his life to his practice, which was large and widely scattered. The scanty leisure he enjoyed was occupied in the study of botany. He leaves a son in the medical profession, at present engaged on the teaching staff of Guy's Hospital.

Dr. ERNEST A. RAMSDEN, aged 61 years, of Saddleworth, Yorks, died on July 2 after six months' illness. From the Manchester Grammar School he won an Exhibition at New College, Oxford, in 1902, and after graduating as B.A. with honours in physiology was elected to a University Scholarship at Charing Cross Hospital in 1906. After taking the M.R.C.S.Eng., L.R.C.P.Lond. qualification and passing the final examination for the M.B. and B.Ch. degrees at Oxford, he served as a house-physician at that hospital and then joined his brother Herbert in medical practice at Saddleworth, and succeeded him seven years ago as medical officer of health for the Urban Sanitary District of Saddleworth. He was also certifying factory surgeon and medical officer to the Post Office. He acted for some months as a house-surgeon at the Manchester Eye Hospital. He was a good chess player and an enthusiastic member of the local geological society. He was the fifth and youngest son of Dr. W. H. F. Ramsden, the memory of whom is perpetuated in the Dobcross village square by a publicly subscribed fountain bearing as epitaph, "Write me as one that loves his fellow-men" (from Leigh Hunt's "Abou Ben Adhem").

Dr. HAROLD ALEXANDER MITCHELL, medical director of the Evans Biological Institute, Runcorn, died in Liverpool on July 2 at the early age of 52. Born in Canada, the son of a Presbyterian minister, Mitchell was intensely proud of being a Canadian. At the University of Toronto he graduated B.A. and M.D., and also took the diploma M.C.P.S.Ontario. Among his contemporaries were Prof. H. B. Maitland and Sir F. G. Banting. He came to this country with the Canadian Expeditionary Force during the last war, and was a captain in the C.A.M.C. At the end of the war he specialized in pathology and immunology, joined the staff of the Evans Biological Institute, and became honorary pathologist to the Warrington Infirmary. A colleague writes: Mitchell's vigorous mind and great personal energy soon made him a master of the difficult problems connected with the large-scale preparation of biological products. He inspired loyalty and keenness in all who worked with him, and his infectious smile and dry sense of humour will be long remembered. A true democrat, Mitchell hated the "cobwebs" associated with hoary traditions, and firmly believed that the British Empire would be rejuvenated if the seat of government was removed from London to Toronto. Stamp-collecting was his one great hobby, and he had a very fine collection of stamps of the British Empire. Knowing himself to be a doomed man, Mitchell faced the latter months of a painful illness with heroic fortitude. He leaves a wife and two daughters. Mitchell was a major in the 15th Bn. Cheshire Regt. Home Guard, a Fellow of the Royal Society of Medicine, a member of the Biochemical Society, and joined the B.M.A. in 1923.

We regret to learn of the sudden death in Cairo on July 10 of Dr. AUSTIN WILLIAM BYRNE, expert in public health to the Egyptian Government, who was awarded the C.B.E. last autumn in recognition of his most helpful co-operation with the Medical Services of the British Army in Egypt in securing hospital treatment for prisoners of war. Dr. Byrne studied medicine in Liverpool, graduating M.B., Ch.B. of the University in 1906; he obtained the D.P.H. of Manchester in 1911 and the M.R.C.P. diploma in 1940. He had served in the R.A.M.C. with the rank of captain. During the war, in addition to his post as consultant to the Ministry of Health and technical adviser on quarantine administration under the Egyptian Government, he was appointed liaison officer between the Egyptian Government Medical Service and the R.N., Army, R.A.F., and Allied Forces in Egypt. For some years past he had examined in public health and for the diploma in tropical medicine and tropical hygiene of the Medical School of the Egyptian University. In 1930 he recorded his investigation into the occurrence of plague in Alexandria.

Prof. THOMAS JOHN JEHU, M.D., F.R.S.Ed., who died on July 18, had a most distinguished career in the realm of science. Born in Montgomeryshire in 1871, he was educated at Oswestry High School and at the University of Edinburgh, where he graduated M.B., C.M., and B.Sc. in Public Health, and was medallist in Geology Class. He then went on to Cambridge, winning an exhibition and a foundation scholarship at St. John's College, and gaining first-class honours in Parts 1 and 2 of the Natural Sciences Tripos and a second-class in the Moral Science Tripos. In 1898 St. John's College awarded him the Newcombe Prize for Natural Science and Philosophy; two years later he returned to the University of Edinburgh as Heriot Fellow, and soon afterwards proceeded M.D. Dr. Jehu was lecturer in geology at St. Andrews University from 1903 until his appointment as Regius Professor of Geology and Mineralogy at Edinburgh in 1914. After his retirement from the chair he was made Professor Emeritus. He was the author of important publications on the lakes of Snowdonia and Eastern Caernarvonshire, and on the glacial deposits of Northern Pembrokeshire and Western Caernarvonshire. A few years ago he carried out geological investigations in the Outer Hebrides with Dr. R. M. Craig, which won them the Keith Prize of the Royal Society of Edinburgh. He was a member of the Royal Commission on Coast Erosion in 1906.

Mr. FRED STOKER, formerly of Harley Street and before then in general practice, died at Loughton, Essex, on July 20. He studied medicine at Newcastle, graduating M.B., B.S. of the University of Durham in 1904, and taking the F.R.C.S.Ed. in 1907. In his student days at Newcastle he won three scholarships. He was for some years surgeon to Queen Mary's Hospital and surgeon to the throat and ear department of the Italian Hospital, and at the Annual Meeting of the B.M.A. in 1926 he was honorary secretary of the Section of Laryngology and Otology. After retiring from surgical practice Mr. Stoker devoted his time to gardening and botany and became well known in horticultural circles. He was the author of several books on horticulture, and for the past two years had regularly contributed gardening articles to the *Times*. In 1937 the Royal Horticultural Society, for whose journal he frequently wrote, bestowed upon him its Victoria Medal of Honour.

Dr. FRANK WILLIAM MARTIN, who died at his home in Springburn, Glasgow, was for 12 years attached to the Forensic Medicine Department at Glasgow University and held the post of divisional surgeon to the City of Glasgow Police. He was born at Bodmin, Cornwall, on Nov. 2, 1883, son of Frank Martin, F.S.A., and was educated at the High School and University of Glasgow, graduating M.B., B.Ch. in 1911 and M.D. in 1933. In the last war Dr. Martin served as captain, R.A.M.C.(T.A.), was officer-in-charge of the Red Cross Hospital at Springburn, and later served with the 22nd Cavalry Division at Salonika. After the armistice he was medical referee under the Ministry of Pensions and held a number of appointments in and around Glasgow. He was honorary secretary of the Glasgow Eastern Division of the B.M.A. in

1926–9 and had been a member of the Glasgow Local Medical and Panel Committee. For some years he examined in forensic medicine for the University of St. Andrews.

News has been received from New Zealand of the death at Otago on June 21 of Mr. ALEXANDER TODD MCCAW, surgeon to the Southland Hospital, Invercargill. He was born on April 9, 1881, son of Hugh McCaw, M.B., and was educated at Otago College of the New Zealand University. He came to England in 1905 and entered the London Hospital, where after qualifying M.R.C.S., L.R.C.P. in 1908 he served as house-surgeon and pathological assistant. Then after further experience at the Seamen's Hospital, Greenwich, he took the F.R.C.S. in 1911, and was for a year senior resident officer at the Bristol Royal Hospital for Children and Women. Mr. McCaw returned to New Zealand to take up surgical practice at Invercargill, and during the last war was in France for two years as captain in the New Zealand Medical Corps. He joined the B.M.A. in 1914 and was chairman of the Southland Division in 1934-6. He was elected F.R.A.C.S. in 1929.

Universities and Colleges

UNIVERSITY OF LEEDS

The University Court has resolved to confer the honorary degree of LL.D. upon Prof. H. S. Raper, F.R.C.P., F.R.S., who has been Brackenbury professor of physiology and director of the physiological laboratories in the University of Manchester for the past twenty years and formerly held the chair of physiology and biochemistry in the University of Leeds. This and other honorary degrees will be conferred on Oct. 27.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.CH.—*Surgery*: S. C. Dymond, A. J. Evans, Elizabeth M. E. Evans, R. G. Evans, J. I. Hughes, F. C. Jenkins, A. E. Jones, C. R. Jones, C. C. Lewis, Gwenda M. Lewis, A. V. Lillywhite, Margaret E. Milter, Ivy M. Morgans, E. R. Price, J. F. Rees, P. H. Thomas, H. D. Walters, I. M. Watkin, A. A. Yauniskis.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on July 20 with the President, Dr. Charles McNeil, in the chair. Dr. James Macalister Mackintosh (Glasgow) was introduced and took his seat as a Fellow of the College. Drs. Henry Hunter Corrigall (Isle of Man), Ian Murray (Glasgow), James Innes (Edinburgh), Harry Stalker (Edinburgh), and Alexander Brown (Edinburgh) were elected Fellows of the College.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a quarterly meeting of the Council held in the College House on July 24, with the President, Sir William Fletcher Shaw, in the chair, the following officers were elected to take office in October: *President:* Mr. Eardley Holland. *Vice-Presidents:* Mr. William Gough and Prof. Daniel Dougal. *Honorary Treasurer:* Mr. J. P. Hedley. *Honorary Secretary:* Mr. G. F. Gibberd. Mr. William Gilliatt was appointed Deputy Honorary Secretary in the absence of Mr. Gibberd on active service. *Honorary Librarian:* Wing Cmdr. F. W. Roques. *Honorary Curator of Museum:* Mr. Aleck W. Bourne.

The following candidates were elected to the Membership: J. K. Baker, I. Kruger, Katharine I. Liebert.

The Council was gratified to receive the gift of £1,000 from a Fellow of the College who wished to remain anonymous. It has been given to commemorate the Presidency of Sir William Fletcher Shaw and the honour of Knighthood conferred on him by the King, and the interest from the gift will form a scholarship to be awarded triennially for research.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glasg.:

J. E. K. Butchart, J. B. Chetwynd, E. J. Connolly, P. M. Ellison, J. Honig, S. Hellowell, R. H. Johnson, W. S. Joyce, W. B. Kalish, P. D. Kemp, L. Le Vann, W. Levy, V. H. McGettigan, W. McKenzie, A. Marshall, P. Menko, T. S. Moore, H. D. Morgenbesser, C. E. Phillip, C. E. Ratner, W. M. Robinson, O. C. Rollason, A. Simons, B. Snell, W. R. Steven, N. C. Wollin, M. Zises.

The following graduates of recognized foreign universities were also admitted licentiates: W. Hoffer, M.D.Vienna, E. Levin, M.D.Munich.

Medical Notes in Parliament

Pensions: New Provisions of Royal Warrant

A debate on pensions and allowances took place in committee of the House of Commons on July 20, when Sir JOHN ANDERSON explained the new arrangements. He said that a very careful review had been made by the War Cabinet after the criticisms and requests put forward in the House and outside. As a result of the changes proposed, it would be found that all reasonable demands had been substantially met. The first and very important change recorded in the White Paper recently issued concerned the onus of proof. The Government proposed to redraft entirely the existing provisions of the Royal Warrant governing the conditions of entitlement to pension. The redraft included certain novel features entirely in the interests of the claimants. They established two presumptions: (1) that a man's condition as recorded on his admission to the Service was, in fact, his condition at that time; and (2) that any subsequent deterioration in his condition was due to his service. It was further provided that there should be no onus of proof on the claimant, and that the benefit of any reasonable doubt should be given to the claimant.

Two other important changes had been made. The word "directly" in the phrase "directly attributable" was omitted and the word "material" in the phrase "material aggravation" and "materially" in the phrase "materially aggravated" were also omitted. These would result in bringing within the scope of the Warrant cases which had hitherto been properly excluded. Any such cases which, under the new terms, became for the first time eligible for pension or grant would be reconsidered at once by the Minister on application. That included old cases which had been rejected. These changes, important as they were, did not go as far as some critics of the Warrant wished, and did not mean an acceptance of the slogan "Fit for service, fit for pension." The only cases that were excluded were those of disablement which were frankly not connected with or attributable to war service, although suffered after the commencement of war service. It would not be possible to stop short at disablements which had occurred during service. Disablements arising after service would have to be brought in, and that would create inequalities and give rise to new grievances. Such cases were proper for consideration under the general social services provisions.

The Question of Accidents

Sir John went on to refer to the sentence beginning: "While the Minister of Pensions would pay regard to any other evidence, including the consensus of medical opinion," and ending with the words: "he will give full weight to the general view expressed above." He said the Government had provided that there should be no onus put on the applicant, that there should be a presumption in his favour, but that, if they found a condition which doctors universally agreed was not attributable to war service, then rebutting evidence would be admissible, and the presumption with which they started might be overborne. With regard to accidents, the Government was giving the fullest application of the doctrine that a Service man placed himself wholly and unreservedly at the disposal of the State during his service, and they were covering everything, with one exception. The exception was the case of a man who went on leave, who was for the time being entirely released from his obligation to the State, and was just as free as anyone else to do what he liked. When soldiers were on foreign service their whole conditions of life would be covered. The Government had not been able to agree to the demand that there should be no distinction between the post-injury marriage and the pre-injury marriage. They had, however, decided to give an extra 10s. a week to the wholly unemployable man, whether single or married, *plus* allowances at the full rate for his wife and children irrespective of the date of marriage. If the pensionable disablement resulted in the pensioner's death a widow's pension would be granted. That would have to be applied to pensioners of the last war. The case of officers' family allowances would be dealt with by removing the present obligation to prove need. Officers would of course also benefit by some of the other changes that were being made.

General Insurance Provision for Services

Dr. HADEN GUEST said that the changes in the pensions Warrant were very great. Its old-fashioned structure was completely broken up, and the main purpose of the old Warrant was dead. While welcoming the White Paper because of the simplification it would bring in administration, he urged that the State

should accept an all-in liability for every kind of disease and disability of all persons in the Services. The Minister should set up an interdepartmental committee of the Ministry of Pensions and the Services to ascertain what the cost of general insurance provision would be and what the saving in man-power with regard to administrative services. If, as he believed, the amount of time spent in the Services in connexion with this sort of thing was out of all proportion—some said 10%—to the amount expended in war in the line, any economy in man-power would be of immense benefit. This would also be largely an economy in medical man-power, of which there was a great shortage.

Dr. H. B. MORGAN said that some of the work of the Ministry of Pensions had been beyond praise. For instance, the hospital at Roehampton was almost a model for certain institutions in the country. He was, however, rather perturbed about certain conditions in the White Paper. How was the Minister to get the independent medical opinion he desired? Medical views had changed. Medical men were seldom trained in questions of attributability, aggravation, or causation of disease. The difficulty of assessing causation, especially when causation was doubtful or not known, was extraordinary. There was no medical training on that point in this country. A great deal depended on the personal factor, such as on the man chosen or the composition of the appeal tribunals. Until there were "soldiers' friends," chosen by the appellants themselves or their organizations, the appellants would really never get justice, nor would there be really decent administration of pensions.

Scientific Research

In the House of Lords on July 20 the debate on a motion by Viscount Samuel calling attention to the need for the further expansion of scientific research was resumed. Lord DAWSON said that we must recognize the progressive momentum of discovery and invention during the last 60 years. In no like period of history had such vast changes taken place. After the last war research and discovery dropped into oblivion in the public mind, but from the moment this war began science had had full and ample recognition and support in every department of Government. After recalling several of the discoveries in the war, Lord Dawson referred to the close co-operation between the British Empire and the U.S.A. in matters of discovery and research. The results had been pooled, and an unselfish and generous anonymity had for the most part been observed. With the onset of peace there would assuredly be a great surge forward of new methods and of new ways. This country must meet the new needs. An organization would be required to make available the great store of talent which the war had disclosed, and to provide endowments on a correspondingly vast scale.

Speaking of the work of the Agricultural Research Council, the Medical Research Council, and the Department of Scientific and Industrial Research, Lord Dawson said that these bodies, being under the Lord President of the Council, were amenable to Parliament, yet they had that freedom which was essential for successful functioning. Most important of all, there was no administrative machinery between each body and the Minister such as would be the case if that body were enmeshed in the Civil Service and formed part of an administrative Department. It was difficult to overstress the importance where science was concerned—and this applied equally to medicine—of preventing the enmeshment of any research body in the close entanglement of a Government Department. One of the chief reasons why these research bodies should receive further support was that they succeeded in combining good order in the work of men of ability with freedom for scientific investigation. He hoped that they would be given a prominent part in any further scheme of research which the Government thought fit to sponsor. It must be said that in the collective minds of the Civil Service there was an imperfect appreciation and understanding of what science stood for. Was not that due to the fact that those who entered the Civil Service under the aegis of science had not the same prospects of rising to the higher posts as those who entered by other portals? How could the Government service expect to get the best brains in science if they treated research and science in that undignified and unfair way? The time had come when the higher posts in the Civil Service should be thrown open to those trained in scientific research. That would attract the best minds, which at present hesitated to enter that service.

Medical Research

Referring to the Medical Research Council, he said its parish was a wide one. It far outstripped what he might call the narrower boundaries of medicine. It embraced the whole of the basic sciences on which medicine was founded, and in the course of this war it had had a range of activity which would surprise many members of the House. It had whole-time workers on its staff, and had under its control the great National Institute for Medical Research, where large-scale work, requiring investigation by teams, was carried on. This institute had a world-wide reputation. It was recognized as the home of scientific standards the world over, and it was a court of reference in that respect. It had played a leading part in advancing knowledge, notably in the fields of vitamins and hormones. Further, the M.R.C., through its grantees, supported research in medical schools in the universities and colleges; in fact, wherever research was firmly rooted and well provided for. Its idea was to help the individual research worker who had proved his ability. It further co-operated through its committees with industry, notably with the Industrial Health Research Board, and a little while ago it founded a research professorship in industrial diseases at the London Hospital. The M.R.C. was also an admirable intelligence department. It knew where all the workers on the different subjects were, and it had the power to gather them together and rally them for a common purpose. Above all, its influence and its encouragement were far-flung over the whole field of medical progress.

There was no investment which offered better results to the nation than that of discovery and research. We might reckon that disease cost this country about £250,000,000 a year. The progress of discovery diminished the ravages and therefore the cost of disease. Some diseases, like rickets and diseased teeth, were passing out of existence. Others, like diabetes, pernicious anaemia, and deficiency diseases, were now under control. Puerperal fever, which not long ago was a constant peril of childbirth, had steadily declined, and pneumonia had lost a large part of its peril and anxiety since the discovery of the sulphonamides. Again, certain forms of meningitis, previously incurable, were not infrequently cured. Another example was gonorrhoea, which attacked people in the active period of life and caused disablement lasting for weeks. Now, owing to the drug in use, its cure could almost be guaranteed within three days. What was more important, the long-term complications of that disease could be almost entirely avoided. Finally there was penicillin, the discovery and development of which were entirely to the credit of British minds and British research workers. This path of chemotherapy was opening up more widely every month. It was opening up help in the direction of tropical diseases, and had played a great part in the improved treatment of wounds in the present war.

Government Research Workers

Lord CHERWELL said that we could not overlook the importance, from the economic point of view, of fostering pure fundamental research. The Government recognized that pure research must be, in a large measure, its responsibility and must be done at the universities; but naturally, as Lord Dawson had said, they also wished to encourage industry to spend money on pure research. It was the Government's policy and intention to increase its aid for research, and it would welcome any developments of industry in a similar direction. He hoped we might see another step forward in the place given to scientific subjects in our schools. The treatment of scientists in the Civil Service had been mentioned, and he frankly admitted that the Civil Service had not hitherto shown due regard for the contribution scientists were making to the nation's welfare. This matter had now been reviewed, and an investigation had been in progress to make sure that the conditions of service, pay, and prospects of Government scientific employees compared favourably with those on the administrative side. He hoped that a definite announcement on these reforms might be made before long. After all, we must preserve a sense of proportion. There were probably not more than a few dozen physicists in this country capable of evolving and developing new applications of, say, the various radio devices on which success in this war very largely depended. Everyone would agree that it was an anomaly to pay them on lower scales than men of equal educational status who, because they had distinguished themselves in what were usually called "humane" subjects, were often given war jobs of much higher status and pay than the scientist.

Mental Health of Recruits

Mr. WOOTTON-DAVIES asked the Minister of Labour what steps were taken when passing men as fit for Army service to ensure that the examining medical boards were fully informed of and took into account any past records of mental instability. Mr. TOMLINSON said that the instructions issued to medical boards provided for inquiry to be made into a man's personal and family history of nervous and mental illness, and for a specialist's opinion to be obtained in cases of doubt. In addi-

tion, since October, 1940, every recruit had been asked to complete in writing a questionary, which included two questions specially directed to this subject. Since December, 1940, the Department had been notified by the Board of Control of all men who might have become liable for military service by reason of their discharge from Orders under the Mental Deficiency Acts, and in all such cases the man's history was brought to the notice of the medical board. Men who exhibited indications of a high degree of nervous or mental instability, or who had at any period of their lives been certified to be of unsound mind or about whom there was other convincing evidence of past or present insanity were not called up for military service.

Beds for Tuberculous Patients in Wales.—Mr. BROWN, replying to Mr. Ness Edwards on July 15, said it was anticipated that within the next few months at least 800 tuberculosis patients in Wales would be waiting for hospital accommodation. The figure was an estimate, but there was at present a substantial shortage of beds for tuberculosis cases in Wales, as in other parts of the country. The problem was greatly accentuated by the present necessary restrictions on new building, and by the difficulty of providing hospital staff. With the help of the Minister of Labour and National Service, he was actively seeking a solution of this staff problem to make it possible to use a certain number of emergency hospital beds for tuberculosis cases. A number of beds had recently been put at the disposal of the civil authorities.

Maternity Beds in London.—Dr. SUMMERSKILL asked on July 16 whether 200 expectant mothers were refused admission to Queen Charlotte's Hospital every month for lack of accommodation; and what action Mr. Brown proposed. Mr. BROWN said substantial numbers of mothers who made inquiries at this hospital had to be refused admission. The arrangement made to compensate for the shortage of maternity beds in London was by provision in the Emergency Maternity Homes established in safer areas for the purpose. Additional maternity beds were being opened in London as fast as adaptation could be carried through and trained staffs secured.

Notes in Brief

The Ministry of Health Standing Committee on Medical and Nutritional Problems, consisting in the main of medical and other officers of the Departments concerned, has, in the two years of its existence, met seventeen times. It has given advice to the Departments concerned on a large number of problems submitted to it.

The estimated numbers of wholesale producers and producer-retailers of milk of tuberculin-tested and attested standard on June 1, 1943, were 2,280 and 1,030 respectively. The corresponding figures for June 1, 1942, were 2,190 and 1,110.

The regulations of the national milk and vitamins schemes have now been adjusted to allow widows and children of Service men to continue to receive free milk and vitamins where they were receiving these commodities free of cost before the death of the husband or father, provided that the normal weekly income from all sources remains unaltered except by the substitution of a pension for the Service allowance. The concession will be extended to widows and children of men who were not Service men where the circumstances are parallel.

The county medical officer of health has informed Mr. Brown that at the end of 1942 the numbers of immunized children in the county districts of Northamptonshire were 8,000 children under 5 and 28,250 children aged 5 to 15. He estimates that these figures represent 46 and 74% respectively of the children in the two age groups specified. This information was obtained as the result of a special investigation made by the county medical officer of health. According to information received from the county medical officer of health, 102 children under 15 in the county districts of Northamptonshire were notified as suffering from diphtheria in the period Jan., 1941, to Dec., 1942.

A note on the possible danger from carbon monoxide has been sent recently to every operator of public service vehicles driven by producer-gas. The danger is also explained in the "Manual of Instructions" which will be distributed with each producer-gas unit allocated to operators of goods vehicles.

Arrangements are being made to afford the British Hospitals Contributory Schemes Association an opportunity of expressing its wishes as to the changes in the present conditions of medical service foreshadowed by the Government's acceptance in principle of Assumption B of the Beveridge report.

Mr. Eden said on June 30 that there existed already in this country a Standing Committee on Nutrition, composed of representatives of various Government Departments and scientific bodies, which performed all the functions recommended in this connexion at Hot Springs.

The British Government has agreed to make a further grant-in-aid of £30,000 for the maintenance of medical and surgical teams for work among Chinese troops and civilians in the war zones of China in co-operation with the Chinese Red Cross and the Chinese medical services. The grant on this occasion will be made direct to the Friends' Ambulance Unit.

An antimalarial unit is operating at Mauritius at present, and an engineer is shortly being sent to Mauritius at the Governor's request to prepare, in conjunction with the local authorities, long-range plans for reducing the incidence of malaria. A nutrition unit is also working in the island, and plans for further extension of its activities are awaited.

The Services

Surg. Lieut. D. M. Sheppard and Temp. Surg. Lieut. A. S. Duncan, R.N.V.R., have been awarded the D.S.C. for resolution, enterprise, and fine leadership in a successful encounter with enemy Forces in the Mediterranean.

CASUALTIES IN THE MEDICAL SERVICES

Killed on Active Service in Middle East in July, 1943.—Capt. A. F. Smith, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Col. GEORGE M'PHERSON, C.I.E., I.M.S. (ret.), died on July 15 in Switzerland, aged 70. After taking an Arts degree in Glasgow he proceeded to qualify with the M.B., C.M. of the same university in 1895, and he entered the Indian Medical Service in January, 1898. He soon saw active service in China in 1900-2 and in the Aden Hinterland. In 1905 he joined the civil medical department of the Bombay Presidency, where he was in charge of plague measures. In 1911 he took the F.R.C.S.Ed. and was appointed professor of ophthalmology in the Grant Medical College of Bombay. In the war of 1914-18 he was consulting ophthalmic surgeon to the Expeditionary Forces in Mesopotamia and was awarded the C.I.E. for his services in 1918. In 1926 he retired and afterwards lived in Switzerland, in Bellaria, Vevey, and Montreux, where his readiness to help in any difficulties was much appreciated. On the outbreak of the present war he volunteered his services in any capacity, but his age precluded his further military employment. His wife, the daughter of the late John Reynolds of Bristol, survives him, as does his elder brother, Sir Hugh M'Pherson, K.C.I.E., of the Indian Civil Service, who formerly served in Bengal.

Medical News

At the opening of the new academic session at Westminster Hospital Medical School the inaugural address will be delivered by the Right Hon. Ernest Brown, Minister of Health, on Monday, Oct. 4, at 3 p.m. Tea will be served in the school.

The Chadwick Trustees are offering three prizes—one of £100, one of £50, and one of £25 (accompanied, if the Trustees so decide, by a Chadwick medal or medals)—for the best three essays, received before Sept. 1 next, on architectural, engineering, and administrative principles (relative to sanitation and hygiene) which should be observed in the replanning arrangements of war-devastated towns or areas. Information in regard to the scope of the essays, etc., can be obtained by sending a stamped and addressed envelope to the Clerk to the Chadwick Trustees, 204, Abbey House, Westminster, S.W.1.

The Board of Directors of the Finney-Howell Research Foundation has awarded two new fellowships and has renewed three others for research into the aetiology and treatment of cancer. Fellowships, carrying an annual stipend of $2,000, are awarded for one year with the possibility of renewal up to three years. Applications must be made on forms obtainable from The Secretary, 1211, Cathedral Street, Baltimore, Maryland, and must reach the Foundation before Jan. 1 of each year. The appointments will be made in March.

Industrial workers are themselves taking an active interest in measures to promote safety and health, and in some factories health committees have been set up. Where no medical officer is available, however, it is difficult for them to obtain professional and technical advice, and the Leicester Branch of the Socialist Medical Association has been responsible for establishing a local Industrial Health Advisory Council, through which it is hoped that specialist advice on industrial health matters will be available wherever it is required. It is suggested that similar councils might be set up in other areas.

Arrangements have been made between the Ministry of Labour and National Service and the Ministry of Health under which State-registered nurses who on account of disability are not fit to return to their previous nursing work, but who are suitable for employment as sister tutors, health visitors, or industrial nurses, may receive training for that purpose.

Dr. John Robert Kennedy of Dunbeath, who graduated at Aberdeen in 1893 and has practised at Latheron for the past 44 years, has received a presentation from patients and friends to commemorate his jubilee in the medical profession.

The King has commanded that the new general hospital under construction by the County Borough Council of Gateshead shall be known as the Queen Elizabeth Hospital. The original plan provided for 220 beds, with a maternity unit of 25 beds. During the war the full plan has been somewhat modified, and the buildings will probably provide altogether some 200 beds. It is expected that the maternity unit will open within the next two months and the general ward accommodation will probably be functioning about the end of the year.

The British Red Cross Society, in its report for the year 1942, announces its willingness to undertake the organization of a national blood transfusion service to come into operation with the end of the war. A number of conferences have been held, one of them attended by representatives of the civil and fighting Services, to prepare the basis for this national organization.

The bequests of the late Mr. R. W. T. Walker of Stirling include (subject to his wife's life interest) £4,000 to the Royal Faculty of Physicians and Surgeons, Glasgow, for further research into rheumatism; £4,000 to the Glasgow Royal Cancer Hospital for research; and £2,500 to Stirling Royal Infirmary if still maintained upon the voluntary principle.

During the past three years there has been an increase in the notification of tuberculosis in Sweden. Swedish health authorities are attempting to check this increase with the help of *x* rays and by vaccinating with B.C.G. In April–June this year, for example, 85,000 officers and soldiers of the Swedish defence forces were *x*-rayed. A special attempt is being made to examine in this way the population in the northern parts of the country, where tuberculosis is rife. Ultimately it is hoped to subject the whole population to *x*-ray examination by using screen photography.

The Association of Certificated Blind Masseurs received the following message from Viscount Dawson of Penn on the occasion of its annual general meeting: "I am delighted to hear such good accounts of the work of the Association and that the demand for the services of blind chartered masseurs and masseuses is so great. It is a tribute to the work the Association is doing, and doing so well." New members of the Association include civilians blinded in air raids during the present war and soldiers and sailors blinded in action.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the chief features of the returns were rises in the number of cases of scarlet fever by 123, and of dysentery by 67, and falls in the incidence of measles by 539, of whooping-cough by 174, and of acute pneumonia by 45.

With the exception of London and the south-western counties the fall in the incidence of whooping-cough was general, especially in Lancashire and Durham with 45 and 33 fewer cases than in the previous week. The increase in scarlet fever was due to the two counties of Lancashire and London, where notifications went up by 66 and 64. Measles continued to fall in most areas, especially in Lancashire 125, and Kent 69; but in Monmouthshire there were 106 more cases.

The notifications of dysentery went up from 93 to 160 during the week. The larger part of this rise was due to an outbreak in Kent, Eastry R.D., 49 persons being infected. Other centres of infection were Buckinghamshire 14, Amersham R.D. 8, Aylesbury R.D. 6; Caernarvonshire 14—from five administrative areas.

In *Scotland* a fall was recorded in the notifications of measles by 48, acute primary pneumonia by 50, whooping-cough by 20, scarlet fever by 18. Notifications of measles have dropped to about one-tenth of the level of five weeks ago, and during the present week 39 of the total of 49 were recorded in the two cities of Glasgow 22, and Edinburgh 17. The incidence of diphtheria rose slightly by 13 cases, over one-third of the cases being recorded in Glasgow. The most notable feature of the returns was the increase in notifications of dysentery from 64 to 125. In West Lothian County there was an outbreak of 39 cases, the other principal centres of infection being the cities of Aberdeen, Glasgow, and Edinburgh, with 18, 15, and 12 cases respectively.

In *Eire* 14 cases of diphtheria in Donegal, Inishowen R.D., accounted mainly for the increase of 17 in the incidence of this disease. Of the 32 cases of whooping-cough 18 were reported from Kerry, Caherciveen R.D.

The Week Ending July 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,099, whooping-cough 2,081, diphtheria 591, measles 2,486, acute pneumonia 445, cerebrospinal fever 44, dysentery 105, paratyphoid 9, typhoid 10.

No. 28

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	1943 (b)	1943 (c)	1943 (d)	1943 (e)	1942 (Corresponding Week) (a)	1942 (Corresponding Week) (b)	1942 (Corresponding Week) (c)	1942 (Corresponding Week) (d)	1942 (Corresponding Week) (e)
Cerebrospinal fever	51	5	20	2	3	83	5	25	2	8
Deaths		—	1				1	3		
Diphtheria	571	37	131	76	26	692	35	150	34	10
Deaths	8	—	—	2	—	8		2	—	1
Dysentery	160	7	125	—	—	198	17	63	—	—
Deaths				—	—			—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	2	—	2	—	—
Deaths		—					—	—		
Erysipelas			29	11	1		—	44	4	4
Deaths		—					—	—		
Infective enteritis or diarrhoea under 2 years				—					103	
Deaths	45	10	9	8	4	37	3	2	9	6
Measles	3,054	155	49	29	6	7,050	747	241	61	143
Deaths	—	—	—	—	1	7	1	2	—	2
Ophthalmia neonatorum	89	2	28	—	—	106	8	15		—
Deaths										
Paratyphoid fever	11	1	2		—	6	—	1		
Deaths	—	—	—		—	1	—	—		—
Pneumonia, influenzal*	457	30	10	1	3	516	22	3	3	7
Deaths (from influenza)	4	—	—	—	—	10	1	—		1
Pneumonia, primary			145	10				129	19	
Deaths		17		6	4		—		4	8
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	7	1	—	1	—	16	—	3	1	—
Deaths		—					—	—		
Puerperal fever		1	17		—	—	—	17	2	1
Deaths							—			
Puerperal pyrexia†	154	9	10	1	—	155	12	7	—	4
Deaths		1								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,082	196	191	57	31	1,558	88	244	60	18
Deaths	1	—	—	—	—	—	—	—	1	—
Small-pox	—	—	—		—	1	—	5		—
Deaths				—	—	—	—	—	—	
Typhoid fever	11	1	1	3	—			1	13	4
Deaths	—	—	—	—	—			—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—			—	—	—
Whooping-cough	2,110	117	74	32	34	1,295	131	15	76	3
Deaths	7	2	3	1	—	13	3	1	3	—
Deaths (0–1 year)	286	42	45	30	25	286	25	40	24	16
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,790	492	517	164	130	3,558	484	524	161	112
Annual death rate (per 1,000 persons living)			11·7	10·8	‡			11·8	10·7	‡
Live births	6,502	782	938	398	272	5,895	695	789	390	284
Annual rate per 1,000 persons living			19·1	26·2	‡			16·3	26·0	‡
Stillbirths	207	27	26			233	20	41		
Rate per 1,000 total births (including stillborn)										

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Complete Heart-block

Q.—*A well-built man of 65 a year ago had a typical Adams-Stokes syndrome, and since then complete heart-block with a regular pulse at 30 to 34 per minute. The blood pressure ranges from 245/95 to 220/90. The arteries are soft, the urine and blood urea normal, and the Wassermann reaction negative. The heart is enlarged; there are no murmurs, and the veins at the root of the neck can be seen to pulsate at double the rate of the radial pulse. He has a mild hypnotic overnight. I have tried various drugs without much effect in relief of his symptoms, which are easy fatigability, shortness of breath on going upstairs, and general slowing down of activity. There is occasional slight oedema of the ankles. Is there any chance that the heart-block may disappear, and what can be done to further this? What other steps can be taken to make the patient comfortable and to prolong his life? The picture is slightly complicated by the fact that for some years he has had asthma and emphysema, the former now much less troublesome.*

A.—This man is fortunate in having no recurrence of the Stokes-Adams attacks of a year ago. It used to be thought that when the block became complete the risk of further syncopal attacks was removed. That view was incorrect, though there is probably less likelihood of further attacks when the block has become complete. The systolic blood pressure is usually raised, and one need not regard him as suffering from hypertension in addition to the block. Some cardiac enlargement is also the rule. Further, he should expect to be more short of breath than those without heart-block; the other symptoms are perhaps referable in part to his age. The heart-block will persist and nothing can be done to rid him of it. As the Wassermann reaction is negative, and arteriosclerosis is the usual cause, no specific treatment will benefit him. He may be reassured as to his progress. The risk of recurrence of Stokes-Adams attacks is relatively slight, and the other ultimate risk is that of heart failure. It would only be if his dyspnoea became pronounced that this question of failure need be raised, especially as he is emphysematous. The most useful course will be to persuade him to limit his activities according to his breathlessness.

Achalasia of the Cardia

Q.—*I have heard there is some drug useful for achalasia of the cardia, and should like to know what this is. The patient I have is 15 years of age and has been dieted since she was quite young. She has taken a semi-solid diet and her height and weight are above normal. She has never required bougies. She is still sick at some meals, but on the whole she takes a fair amount of food.*

A.—When it was believed that the dysphagia was due to cardiospasm, it was natural to treat it with antispasmodic drugs, such as nitrites, nitroglycerin, benzyl benzoate, etc. Recent pathological studies, however, support Hurst's theory that achalasia is primarily a disease of the myenteric plexus. There is no organic narrowing or thickened sphincter at the lower end of the oesophagus. With destruction of the plexus, sympathetic fibres to the terminal portion of the oesophagus act without opposition, the terminal portion does not relax normally with the swallowing reflex, and dysphagia results. It has been suggested that the degeneration of the ganglion cells in the myenteric plexus is due to avitaminosis B, and that the disease should be treated with large doses of vitamin B_1, 20 to 100 mg. daily, by mouth or parenterally. This treatment would require prolonged trial, as recovery of the ganglion cells would obviously be slow. Another rational form of therapeutics is to use prostigmine to reinforce the action of the parasympathetic supply of the terminal portion of the oesophagus. Prostigmine may be given either by injection, for which purpose it is put up in 1-c.cm. ampoules, or by mouth in tablets containing 15 mg. It is an expensive drug, and it would therefore seem desirable to observe the effects on the x-ray screen. If an effect cannot be demonstrated with an adequate single dose it would seem useless to continue the drug. In conclusion, it may be noted that no convincing results have been reported with either of these forms of therapy.

Treatment of Schizophrenia

Q.—*The treatments of schizophrenia at present in vogue seem to me to go to the extremes of producing convulsions on the one hand and continuous narcosis on the other. Is there any evidence to prove which of the two is preferable? And would it be possible to state briefly what is the rationale behind these two treatments? To the general practitioner asked to advise the relatives of patients the situation is slightly bewildering.*

A.—There is no acceptable rationale of convulsion treatment; its justification is empirical, the theory that led to its adoption having been mistaken. The theory of narcosis is roughly one of the completest possible rest for the nervous system as a whole. Continuous narcosis is not often effective in cutting short schizophrenic illnesses. Convulsion treatment, on the other hand, while it cuts a good many of them short, is accompanied by a considerable relapse rate, so that its ultimate value in the treatment of schizophrenia is still in question.

Sulphonamides in Virus Infections

Q.—*Sulphonamides seem to be of use in lymphogranuloma venereum and trachoma. Are they of value in infections with the psittacosis viruses?*

A.—Experiments in mice (Burnet) have given negative results, though some limited experiments with sulphapyridine (Bedson; unpublished) suggested that this drug was not altogether without effect on psittacosis in the mouse. Meyer and Eddie report that a human case of ornithosis did not respond to sulphathiazole, and the failure to respond to sulphonamide drugs is one of the criteria on which the diagnosis of atypical pneumonia is made. However, the American literature contains the report of one case of psittacosis which responded to sulphapyridine (Hinshaw, 1940), and there have been two cases at the London Hospital (unpublished) treated with this drug with apparent success. An open mind on this question should, therefore, be kept until these drugs have been given a more extended trial.

Urticaria

Q.—*What are the chief causes of urticarial rashes, and what are the best forms of treatment? Is it possible that heavy chlorination of the water is responsible for prevalence in children? I have observed that removal of a child on holiday leads to disappearance of the rash.*

A.—The chief causes of urticarial rashes are allergic responses to foods, drugs, foreign proteins, and toxins, and the reactions are partly or wholly conditioned by metabolic factors, which may be dietetic, endocrine, or nervous. The problem and its treatment require a whole chapter of a dermatological textbook and cannot adequately be dealt with here. Chlorinated water usually produces a follicular eruption of minute urticarial papules rather like the rash of rubella, but in my experience the eruption is not common. Several observers have reported that urticaria in children almost invariably clears up without treatment when a child leaves its home, and some evidence exists to the effect that dust in the bedrooms is the offending allergen. Antigens prepared from dust have been used with some success in the desensitization of young urticarial subjects, but at least equally good results can be obtained by attention to the metabolic factors above mentioned plus hydrarg. cum cret., alkaline aperients, and 2% of phenol in calamine lotion.

Strains of Diphtheria Bacilli

Q.—(*a*) *Is a "mitis" strain of diphtheria bacillus by definition incapable of producing a membrane and symptoms in man?* (*b*) *Conversely, are all strains isolated from cases of clinical diphtheria "virulent" and not "mitis"?* (*c*) *If the answer to both questions is Yes, then only strains from symptomless carriers need be examined for virulence?*

A.—(*a*) No. Mitis does cause clinical diphtheria and even severe or fatal diphtheria. McLeod (*J. Path. Bact.*, 1939, **48**, 99) described 48 fatal cases of diphtheria, of which 11 were due to mitis infection. Shone (ibid., p. 139) recorded 783 mitis infections, of which 197 were moderate and 105 severe; 2.4% of the mitis patients died. The complication rates for mitis-infected patients were laryngeal 8.5, tracheotomy 5.2, circulatory 3.7, paralysis 2.8, severe toxaemia 0.3. (*b*) No. Probably the questioner has confused two points. Bacteriologists using tellurite plates quickly identify the types

isolated, and as they have found that almost all gravis and intermedius strains are virulent in animal test, they dispense with this test in routine work. Mitis strains from cases of frank diphtheria may or may not be virulent.

Prognosis of Subacute Combined Degeneration

Q.—*How has the prognosis of subacute combined degeneration of the cord been affected since the introduction of liver therapy and desiccated stomach extracts?*

A.—The development of the spinal-cord lesions of pernicious anaemia can be completely arrested by adequate treatment with liver or stomach. Adequate treatment implies receiving more liver than is necessary merely for the maintenance of a normal blood count, and in the early stages of treatment a full dose of liver extract—i.e., 4 c.cm.—should be injected intramuscularly three times a week. Later the number of injections may be reduced to one a week, but this should be maintained for two or three years and only then reduced to once every three weeks. Signs attributable to peripheral nerve involvement generally disappear within six months. Subjective improvement in strength and ability to get around may continue for two or three years, and occasionally objective evidence of spinal disease, such as an abnormal Babinski reflex, may disappear during this period. Little improvement can be expected after this time, with the important proviso that there is often a considerable hysterical overlay which may respond dramatically to appropriate handling.

Oestrogens at the Menopause

Q.—*Oestrogens, natural or synthetic, are recommended for the relief of troublesome menopausal symptoms. I should be glad to know whether expert opinion is in favour of giving these substances as a routine to every woman who reaches the menopause. What is the optimum dosage, and how long should the drug be continued?*

A.—Routine administration of oestrogens to all women of menopausal age is to be deprecated, because only about 20% of women experience menopausal or climacteric symptoms of such severity as to be troublesome. For these, synthetic oestrogens, such as stilboestrol or hexoestrol, should be given in as small a dose as possible. Begin with 0.5 mg. twice or three times daily by mouth, and if the symptoms are not relieved increase cautiously until the dose is sufficient to reduce the number of "flushes" to an average of four in twenty-four hours. The object of treatment is not to give complete relief but to moderate symptoms to a reasonable extent. It is rarely necessary to give more than 1 mg. three times daily. Having determined the dose necessary to give relief, maintain that dose for two to three weeks. Then gradually reduce it over a period of three to six months, using always the number of "flushes" as a guide. This very gradual and regular reduction is the essential feature of the treatment, as it allows the endocrine system and other body functions to accommodate themselves to the diminished ovarian activity. This should be explained to the patient in order to obtain her co-operation. Prolonged and heavy dosage to secure complete relief of symptoms is never justifiable, and symptoms will always recur if the treatment is stopped suddenly.

Dressing for Clean Ulcer

Q.—*Following treatment, a superficial abrasion that was septic has cleared, and there now remains a shallow clean ulcer with a granulation base. What dressing should be applied and how often should it be dressed? Some dressing is essential in Service patients on duty.*

A.—The dressing should shield the ulcer from further contamination and injury, and this can be achieved most conveniently by powdering the surface lightly with sulphanilamide, and then applying either a few layers of gauze impregnated with sterile vaseline or a layer of tulle gras. This dressing may be held in place by a complete covering of elastoplast, and if the ulcer is not too large, and if movement of the part will not interfere with healing, the patient can remain at duty. The dressing should be left untouched for at least a week, and if still unhealed yet progressing satisfactorily, the process may be repeated for another week. If, however, healing is delayed, the part must be immobilized.

More about Earwigs

Q.—*In reference to the answer to the question about earwigs (July 10), could you inform me (1) how to prepare dried apple pomace, and (2) whether sodium fluoride is poisonous to cats or dogs?*

A.—Apple pomace is a commodity sold as such. It is the flour or detritus from dried apple rings. Perhaps chicken balancer meal would be more readily available now as a substitute.

Sodium fluoride is fairly poisonous to mammals: the median lethal dose is about 1/2 g. per kg. On the other hand it seems unlikely that domestic animals would lick up a sufficient quantity to be dangerous if the bait is spread in small crumbs suitable for insects.

INCOME TAX

Annuity Policy with the Medical Sickness, Annuity and Life Assurance Society

"R.N.V.R." pays £16 19s. a year on an annuity policy with this society, taken out under the B.M.A. pension scheme. He has claimed, but has not received, an allowance for the premiums.

*** He should write to the Assessor of Income Tax, Admiralty, or to the Chief Inspector of Taxes, the Hydro, Llandudno, requesting the allowance, and pointing out that the policy was taken out in connexion with the National Health Insurance Practitioners' Pension and Insurance Scheme.

Free Quarters in a State Institution

"M.D., M S." holds an appointment in a State institution, receiving a salary and free quarters. Is he liable to pay tax on the annual value of the quarters occupied by him?

*** The legal rule is in No. VI of Schedule A, which provides for the exemption of the "tax charged on any hospital . . . or almshouse in respect of the public buildings . . . not occupied by any individual officer or the master thereof. . . ." This means that the quarters in question remain chargeable to tax, and "M.D., M.S." becomes liable for payment. It is of course possible that the amount at which the quarters are valued is excessive, or that there are some special circumstances of the particular case affecting the liability; we can only state here the general position.

LETTERS, NOTES, ETC.

Medical Directory, 1944

The Editor of the *Medical Directory* (104, Gloucester Place, Portman Square, London, W.1) writes: To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost of mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

Morton's Metatarsalgia

The author of our note (*Journal*, June 26, p. 808) under the above heading writes: It was obvious to me that the original inquiry came from a general practitioner who wanted straightforward guidance probably upon the very common condition frequently referred to by G.P.s as such, but which, as Mr. W. Sayle Creer rightly points out, is not quite the same thing as that originally described by Morton. On the other hand Mr. Sayle Creer has done nothing to clarify the position. On the contrary, he has told us that the Mortons were quite wrong in their interpretations of the eponym, which I still maintain is not a diagnosis; neither do I think that Mr. Sayle Creer knows what the "diagnosis" is. At any rate, he hasn't told us.

Salvage of Agar

Dr. H. H. GLEAVE writes from the Pathological Department, Royal South Hants and Southampton Hospital: In the *Journal*, July 3, p. 16, a reference is made to the recovery of agar. As agar is valuable salvage I asked Mr. R. White (my technician) to work out a method, and this has been in use here for the past year. We hope to publish details elsewhere, but briefly the method is as follows. A large flask with funnel is left in the steamer and the used agar dropped into the funnel and filtered. When the flask is full the agar is again filtered, dried in trays in the hot-air duct, washed for six days in a slow stream of water in an old charcoal type water filter, dried, and bottled. The yield is about 60%. Even on a small scale the recovery seems worth while.

Oedema of Extremities at Sea

Mr. VAUGHAN PENDRED (Tilford, Surrey) writes: The letter of Dr. Harold Thorn (June 5, p. 708) recalls to me a like experience of oedema of the legs at sea when I was a P. & O. surgeon 42 years ago. The chief officer, myself, and two passengers I recall with this alarming disfigurement of our lower limbs. The late Dr. J. H. Bryant of Guy's had reported oedema occurring in patients with tremendous salt appetites, and cure by deprivation. Now surely at sea the ideal conditions for excessive salt intake are present. The bow wave of a ship in fine weather is present day and night. In bad weather the waves break and the air is intensely laden with salt. One day on shore used to cure the oedema.

Interstitial Emphysema

Dr. G. H. DARLINGTON (Leeds) writes: It would appear that the occurrence of interstitial emphysema during labour is not so very infrequent. On June 11 of this year a patient of mine, a healthy primipara aged 26, developed the typical swelling of the neck, face, and right arm during a rather prolonged second stage. Curiously enough it started about one hour after I had given an injection of 1/4 gr. of morphine, when the patient was comfortable and not straining. The emphysema disappeared in about a week. The only point of interest in her past history is that at the age of 10 she was treated for tuberculous glands of the neck.